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NUCLEAR POWER FACTS AND FIGURES

STATUS OF U.S. NUCLEAR POWER PLANTS AS OF JANUARY 1, 1984

86 reactors with operating licenses*	69,847 MWe
52 reactors with construction permits	57,638 MWe
2 reactors on order	2,240 MWe
140 commitments	129,725 MWe

*Includes 76 reactors (60,223 MWe) in commercial operation,
3 reactors with full-power operating licenses (Summer 1 = 900 MWe, McGuire 2 = 1180 MWe, San Onofre 3 = 1100 MWe),
3 reactors with low-power operating licenses (Grand Gulf 1 = 1250 MWe, WPPSS 2 = 1100 MWe),
1 reactor with fuel-load license (Diablo Canyon 1 = 1084 MWe),
3 reactors shut down indefinitely (Dresden 1 = 207 MWe, Three Mile Island 1 = 819 MWe, Three Mile Island 2 = 906 MWe).

STATUS OF NUCLEAR POWER PLANTS OUTSIDE THE U.S. AS OF JANUARY 1, 1983

207 reactors operable	105,823 MWe
163 reactors under construction	135,702 MWe
13 reactors on order	12,574 MWe
172 reactors firmly planned	159,963 MWe
555 commitments	414,062 MWe

U.S. NUCLEAR MILESTONES IN 1983

At the end of 1983, the installed megawatts of nuclear power capacity represented about 11% of total electric generating capability.

In 1983, commercial nuclear plants produced about 13% of total U.S. electrical output.

For nuclear units with construction permits, 29 are 75-99% complete, 10 others are 50-74%, 10 units 25-49%, 2 units 1-24% and 1 unit 0%.

U.S. nuclear plants have accumulated 805 reactor-years of operating experience or about 25% of worldwide total nuclear operating experience.

During 1983, 3 reactors went into commercial operation, 4 reactors received operating licenses, 1 reactor was retired, 27 reactors were delayed, and 6 were cancelled.

U.S. REACTOR ORDERS OVER THE YEARS

1953-1965	19 units	1975	4
1966	20	1976	3
1967	31	1977	4
1968	16	1978	2
1969	7	1979	0
1970	14	1980	0
1971	21	1981	0
1972	38	1982	0
1973	41	1983	0
1974	26		

TYPES AND MANUFACTURERS OF U.S. OPERATING REACTORS

Reactor type by manufacturer:

Pressurized Water Reactor (PWR) — 34 W, 11 CE, 9 B&W	54
Boiling Water Reactor (BWR) — 29 GE, 1 AC	30
High Temperature Gas-cooled Reactor (HTGR) — 1 GA	1
Graphite Reactor (GR) — 1 GE	1
	86 units

Reactor manufacturer by type:

Westinghouse Electric Corporation (W) — 34 PWR	34
General Electric Company (GE) — 29 BWR, 1 GR	30
Combustion Engineering, Inc. (CE) — 11 PWR	11
Babcock & Wilcox Company (B&W) — 9 PWR	9
General Atomic Company (GA) — 1 HTGR	1
Allis-Chalmers (AC) — 1 BWR	1
	86 units

U.S. ENERGY *PRODUCTION* BY SOURCE, 1957-1982
[Quadrillion (10^{15}) Btu]

Year	Nuclear Quads	Nuclear % of Total	Coal[1] Quads	Coal[1] % of Total	Petroleum[2] Quads	Petroleum[2] % of Total	Natural Gas (Dry) Quads	Natural Gas (Dry) % of Total	Hydro Quads	Hydro % of Total	Other[3] Quads	Other[3] % of Total	Total Energy Production, Quads	Percent Change from Previous Year[4]
1957	0	0	13 4	31 9	16 5	39 3	10 6	25 2	1 5	3 6	([5])	([6])	42 0	0 9
1958	([5])	([6])	11 2	28 5	15 5	39 5	10 9	27 9	1 6	4 1	([5])	([6])	39 2	-6 7
1959	([5])	([6])	11 1	27 1	16 3	39 9	12 0	29 2	1 6	3 8	([5])	([6])	40 9	4 3
1960	0 01	([6])	11 1	26 6	16 4	39 2	12 7	30 3	1 6	3 8	([5])	([6])	41 8	2 2
1961	0 02	([6])	10 7	25 4	16 8	39 6	13 1	31 0	1 7	3 9	([5])	([6])	42 3	1 2
1962	0 03	0 1	11 2	25 5	17 1	39 0	13 7	31 3	1 8	4 1	([5])	([6])	43 9	3 8
1963	0 04	0 1	12 2	26 4	17 7	38 3	14 5	31 3	1 8	3 9	([5])	([6])	46 2	5 2
1964	0 04	0 1	12 8	26 7	18 0	37 4	15 3	31 9	1 9	3 9	([5])	([6])	48 0	4 1
1965	0 04	0 1	13 4	26 9	18 4	37 1	15 8	31 8	2 1	4 1	([5])	([6])	49 7	3 4
1966	0 06	0 1	13 8	26 3	19 6	37 3	17 0	32 4	2 1	3 9	([5])	([6])	52 5	5 7
1967	0 09	0 2	14 2	25 6	20 8	37 6	17 9	32 4	2 4	4 2	0 01	([6])	55 4	5 5
1968	0 14	0 2	13 9	24 4	21 6	37 9	19 1	33 4	2 4	4 1	0 01	([6])	57 1	3 1
1969	0 15	0 2	14 2	23 9	22 0	37 0	20 5	34 4	2 7	4 5	0 01	([6])	59 4	4 0
1970	0 24	0 3	15 1	24 2	22 9	36 6	21 7	34 7	2 6	4 2	0 01	([6])	62 5	5 2
1971	0 41	0 7	13 6	22 0	22 6	36 6	22 3	36 2	2 8	4 5	0 01	([6])	61 7	-1 3
1972	0 58	0 9	14 5	23 1	22 6	36 0	22 2	35 4	2 9	4 6	0 03	([6])	62 8	1 8
1973	0 91	1 5	14 4	23 0	22 1	35 3	22 2	35 5	2 9	4 6	0 04	0 1	62 4	-0 6
1974	1 27	2 1	14 5	23 6	21 0	34 4	21 2	34 6	3 2	5 2	0 05	0 1	61 2	-1 9
1975	1 90	3 2	15 2	25 3	20 1	33 5	19 6	32 6	3 2	5 3	0 07	0 1	60 1	-1 9
1976	2 11	3 5	15 9	26 4	19 6	32 6	19 5	32 4	3 0	5 0	0 08	0 1	60 1	0 1
1977	2 70	4 5	15 8	26 3	19 8	32 8	19 6	32 4	2 3	3 9	0 09	0 1	60 3	0 3
1978	3 02	4 9	15 0	24 6	20 7	33 8	19 5	31 8	2 9	4 8	0 06	0 1	61 2	1 6
1979	2 71	4 4	17 7	27 7	20 4	32 5	20 1	30 6	2 9	4 7	0 09	0 1	63 9	4 3
1980	2 74	4 3	18 6	28 7	20 5	31 6	19 9	30 7	2 9	4 5	0 11	0 2	64 8	1 5
1981	2 97	4 6	18 4	28 6	20 5	31 8	19 7	30 6	2 7	4 2	0 12	0 2	64 4	-0 6
1982	3 08	4 9	18 7	29 4	20 5	32 2	18 0	28 3	3 2	5 0	0 11	0 2	63 6	-1 4

[1] Includes bituminous, lignite and anthracite coal
[2] Includes crude oil, lease condensate and natural gas plant liquids
[3] Includes geothermal, wood and waste
[4] Percent change calculated from data prior to rounding
[5] Less than 0 005 quadrillion Btu
[6] Less than 0 05 percent
Note: Numbers may not add to totals because of independent rounding
Source: U S Department of Energy, Energy Information Administration, 1957 to 1981 — *1982 Annual Energy Review*, DOE/EIA-0384 (82), April 1983, p 5; 1982 — *Monthly Energy Review*, DOE/EIA-0035 (83/07), August 1983, p 4

U.S. ENERGY *CONSUMPTION* BY SOURCE, 1957-1982
[Quadrillion (10^{15}) Btu]

Year	Nuclear Quads	Nuclear % of Total	Coal[1] Quads	Coal % of Total	Petroleum[2] Quads	Petroleum % of Total	Natural Gas (Dry) Quads	Natural Gas (Dry) % of Total	Hydro Quads	Hydro % of Total	Other[3] Quads	Other % of Total	Total Energy Consumption, Quads	Percent Change from Previous Year[4]
1957	0	0	11.1	27.2	17.9	43.9	10.2	25.0	1.6	3.9	0	0	40.8	0.1
1958	([5])	([6])	9.8	24.2	18.5	45.6	10.7	26.2	1.6	4.0	0	0	40.7	–0.4
1959	([5])	([6])	9.6	23.1	19.3	45.5	11.7	27.6	1.6	3.8	0	0	42.4	4.3
1960	0.01	([6])	10.1	22.9	19.9	45.2	12.4	28.1	1.7	3.7	([5])	([6])	44.1	3.9
1961	0.02	([6])	9.9	22.1	20.2	45.2	12.9	28.8	1.7	3.8	([5])	([6])	44.7	1.5
1962	0.03	0.1	10.2	21.8	21.1	45.1	13.7	29.2	1.8	3.8	([5])	([6])	46.8	4.6
1963	0.04	0.1	10.7	22.0	21.7	44.6	14.4	29.6	1.8	3.7	([5])	([6])	48.6	3.9
1964	0.04	0.1	11.2	22.0	22.3	43.9	15.3	30.2	1.9	3.8	([5])	([6])	50.8	4.5
1965	0.04	0.1	11.9	22.4	23.3	43.9	15.8	29.7	2.1	3.9	([5])	([6])	53.0	4.4
1966	0.06	0.1	12.5	22.3	24.4	43.5	17.0	30.3	2.1	3.8	([5])	([6])	56.0	5.7
1967	0.09	0.1	12.2	21.1	25.3	43.8	17.9	31.0	2.3	4.0	0.01	([6])	57.9	3.4
1968	0.14	0.2	12.6	20.6	27.0	44.1	19.2	31.3	2.3	3.8	0.01	([6])	61.3	5.9
1969	0.15	0.2	12.7	19.7	28.3	43.8	20.7	32.1	2.7	4.2	0.01	([6])	64.5	5.2
1970	0.24	0.3	12.6	18.9	29.5	44.2	21.8	32.6	2.7	4.0	0.01	([6])	66.8	3.6
1971	0.41	0.6	12.0	17.5	30.6	44.8	22.5	32.9	2.9	4.2	0.01	([6])	68.3	2.2
1972	0.58	0.8	12.4	17.3	33.0	46.1	22.7	31.7	2.9	4.1	0.03	([6])	71.6	4.9
1973	0.91	1.2	13.3	17.8	34.8	46.7	22.5	30.2	3.0	4.0	0.04	0.1	74.6	4.2
1974	1.27	1.8	12.9	17.7	33.5	46.0	21.7	29.8	3.3	4.6	0.05	0.1	72.8	–2.5
1975	1.90	2.7	12.8	18.1	32.7	46.3	20.0	28.3	3.2	4.5	0.07	0.1	70.7	–2.8
1976	2.11	2.8	13.7	18.4	35.2	47.2	20.4	27.4	3.1	4.1	0.08	0.1	74.5	5.4
1977	2.70	3.5	14.0	18.4	37.1	48.6	19.9	26.1	2.5	3.3	0.09	0.1	76.3	2.4
1978	3.02	3.8	14.0	17.9	38.0	48.6	20.0	25.6	3.1	4.0	0.06	0.1	78.2	2.4
1979	2.71	3.4	15.2	19.3	37.1	47.0	20.7	26.3	3.1	3.9	0.09	0.1	78.9	0.9
1980	2.74	3.6	15.4	20.3	34.2	45.0	20.4	26.8	3.1	4.1	0.11	0.2	76.0	–3.7
1981	2.97	4.0	16.0	21.6	31.9	43.1	19.9	26.9	3.1	4.2	0.12	0.2	74.0	–2.6
1982	3.08	4.3	15.4	21.7	30.4	42.9	18.3	25.8	3.6	5.1	0.11	0.2	70.9	–4.2

[1]Includes bituminous, lignite and anthracite coal and net imports of coke.
[2]Includes natural gas plant liquids and crude oil burned as fuel.
[3]Includes geothermal, wood and waste.
[4]Percent change calculated from data prior to rounding.
[5]Less than 0.005 quadrillion Btu.
[6]Less than 0.05 percent.
Note: Numbers may not add to totals because of independent rounding.
Source: U.S. Department of Energy, Energy Information Administration, 1957 to 1981 — *1982 Annual Energy Review*, DOE/EIA-0384 (82), April 1983, p. 7; 1982 — *Monthly Energy Review*, DOE/EIA-0035 (83/07), August 1983, p. 6.

U.S. INSTALLED ELECTRICAL GENERATING *CAPACITY* BY PRIME MOVER, 1957-1982
(Thousand megawatts)

End of Year	Nuclear Power MWe	Nuclear Power % of Total	Conventional Steam[1] MWe	Conventional Steam[1] % of Total	Internal Combustion MWe	Internal Combustion % of Total	Gas Turbine MWe	Gas Turbine % of Total	Hydropower MWe	Hydropower % of Total	Geothermal MWe	Geothermal % of Total	Total Installed Capacity, MWe	Percent Increase over Previous Year
1957	0 1	0 1	99 4	77 0	2 5	2 0	0	0	27 0	20 9	0	0	129 1	7 0
1958	0 1	0 1	110 5	77 5	2 6	1 8	0	0	29 4	20 6	0	0	142 6	10 5
1959	0 1	0 1	123 0	78 4	2 7	1 7	0	0	31 1	19 8	0	0	156 8	10 0
1960	0 3	0 2	132 1	78 7	2 8	1 7	0	0	32 4	19 3	([2])	([3])	168 0	7 1
1961	0 4	0 2	141 8	78 5	3 0	1 7	0	0	35 5	19 6	([2])	([3])	180 7	7 6
1962	0 7	0 4	150 0	78 5	3 0	1 6	0	0	37 3	19 5	([2])	([3])	191 1	5 8
1963	0 7	0 4	165 7	78 7	3 2	1 5	0 6	0 3	40 2	19 1	([2])	([3])	210 5	10 2
1964	0 9	0 4	175 0	78 7	3 3	1 5	0 9	0 4	42 2	19 0	([2])	([3])	222 3	5 6
1965	0 9	0 4	186 6	79 0	3 4	1 4	1 4	0 6	43 8	18 6	([2])	([3])	236 1	6 2
1966	1 9	0 8	195 4	78 8	3 5	1 4	2 0	0 8	45 0	18 2	([2])	([3])	247 8	5 0
1967	2 9	1 1	211 1	78 4	3 8	1 4	3 3	1 2	48 1	17 9	0 1	([3])	269 3	8 7
1968	2 8	1 0	226 8	77 9	4 0	1 4	6 2	2 1	51 2	17 6	0 1	([3])	291 1	8 1
1969	4 0	1 3	242 2	77 3	4 2	1 3	10 1	3 2	52 8	16 9	0 1	([3])	313 3	7 6
1970	6 5	1 9	260 0	76 1	4 4	1 3	15 5	4 6	55 1	16 1	0 1	([3])	341 6	9 0
1971	8 7	2 4	277 8	75 3	4 5	1 2	21 9	5 9	55 9	15 1	0 2	0 1	368 9	8 0
1972	15 3	3 8	294 1	73 8	4 8	1 2	27 7	6 9	56 4	14 2	0 3	0 1	398 6	8 1
1973	21 0	4 7	320 6	72 5	5 0	1 1	33 4	7 6	62 0	14 0	0 4	0 1	442 4	11 0
1974	31 6	6 6	337 3	70 6	5 0	1 1	39 6	8 3	63 6	13 3	0 4	0 1	477 6	8 0
1975	39 8	7 8	352 9	69 4	5 1	1 0	44 1	8 7	65 9	13 0	0 6	0 1	508 3	6 4
1976	42 9	8 1	367 9	69 3	5 3	1 0	46 6	8 8	67 7	12 7	0 6	0 1	531 0	4 5
1977	49 9	8 9	387 8	69 2	5 3	0 9	47 9	8 6	68 7	12 3	0 6	0 1	560 2	5 5
1978	53 5	9 2	399 5	69 0	5 5	0 9	49 0	8 5	71 0	12 3	0 6	0 1	579 2	3 4
1979	54 6	9 0	411 6	68 9	5 5	0 9	50 6	8 5	75 3	12 6	0 7	0 1	598 3	3 3
1980	56 5	9 2	423 5	69 0	5 5	0 9	50 6	8 3	76 4	12 4	1 0	0 2	613 5	2 5
1981	60 8	9 6	438 9	69 1	5 6	0 9	51 4	8 1	77 1	12 1	1 0	0 2	634 8	3 5
1982	63 1	9 7	450 4	69 3	5 1	0 8	51 8	8 0	78 0	12 0	1 0	0 2	649 5	2 3

[1] Includes capacity at plants that produce steam from coal, petroleum, natural gas and biomass.
[2] Less than 0.05 thousand megawatts.
[3] Less than 0.05 percent.
Note: Numbers may not add to totals because of independent rounding.
Source: U.S. Department of Energy, Energy Information Administration, 1957 to 1982 — *1982 Annual Energy Review*, DOE EIA-0384 (82), April 1983, p. 159

U.S. ELECTRICAL *GENERATION* BY SOURCE, 1957-1982
(Billion kilowatt-hours)

Year	Nuclear kwh	Nuclear % of Total	Coal kwh	Coal % of Total	Oil kwh	Oil % of Total	Gas kwh	Gas % of Total	Hydro kwh	Hydro % of Total	Other[1] kwh	Other[1] % of Total	Total Electric Generation kwh	Percent Increase over Previous Year
1957	([2])	([3])	346	54.8	40	6.4	114	18.1	130	20.6	([2])	([3])	632	5.2
1958	([2])	([3])	344	53.4	40	6.2	120	18.6	140	21.7	([2])	([3])	645	2.1
1959	([2])	([3])	378	53.2	47	6.6	147	20.7	138	19.4	([2])	([3])	710	10.1
1960	1	0.1	403	53.4	46	6.1	158	21.0	146	19.4	([2])	([3])	754	6.2
1961	2	0.3	422	53.3	47	5.9	169	21.3	152	19.2	([2])	([3])	792	5.0
1962	2	0.3	450	52.8	47	5.5	184	21.6	169	19.7	([2])	([3])	853	7.7
1963	3	0.3	494	53.9	52	5.7	202	22.0	166	18.1	([2])	([3])	917	7.5
1964	3	0.3	526	53.5	57	5.8	220	22.4	177	18.0	([2])	([3])	984	7.3
1965	4	0.4	571	54.1	65	6.1	222	21.0	194	18.4	([2])	([3])	1,055	7.2
1966	6	0.5	613	53.6	79	6.9	251	21.9	195	17.0	1	0.1	1,144	8.4
1967	8	0.6	630	51.9	89	7.3	265	21.8	222	18.3	1	0.1	1,214	6.1
1968	13	1.0	685	51.5	104	7.8	304	22.9	222	16.7	1	0.1	1,329	9.5
1969	14	1.0	706	48.9	138	9.6	333	23.1	250	17.3	1	0.1	1,442	8.5
1970	22	1.4	704	46.0	184	12.0	373	24.3	248	16.2	1	0.1	1,532	6.2
1971	38	2.4	713	44.2	220	13.6	374	23.2	266	16.5	1	0.1	1,613	5.3
1972	54	3.1	771	44.1	274	15.6	376	21.5	273	15.6	2	0.1	1,750	8.5
1973	83	4.5	848	45.6	314	16.9	341	18.3	272	14.6	2	0.1	1,861	6.3
1974	114	6.1	828	44.4	301	16.1	320	17.1	301	16.1	3	0.2	1,867	0.3
1975	173	9.0	853	44.5	289	15.1	300	15.6	300	15.6	3	0.2	1,918	2.7
1976	191	9.4	944	46.3	320	15.7	295	14.5	284	13.9	4	0.2	2,038	6.3
1977	251	11.8	985	46.4	358	16.8	306	14.4	220	10.4	4	0.2	2,124	4.2
1978	276	12.5	976	44.2	365	16.6	305	13.8	280	12.7	3	0.2	2,206	3.9
1979	255	11.4	1,075	47.8	304	13.5	329	14.7	280	12.4	4	0.2	2,247	1.9
1980	251	11.0	1,162	50.8	246	10.8	346	15.1	276	12.1	6	0.2	2,286	1.7
1981	273	11.9	1,203	52.4	206	9.0	346	15.1	261	11.4	6	0.2	2,295	0.4
1982	283	12.6	1,192	53.2	147	6.6	305	13.6	309	13.8	5	0.2	2,241	-2.4

[1]Includes geothermal, wood and waste.
[2]Less than 0.5 billion kilowatt-hours.
[3]Less than 0.05 percent.
Note: Numbers may not add to totals because of independent rounding.
Source: U.S. Department of Energy, Energy Information Administration, 1957 to 1981 — *1982 Annual Energy Review*, DOE/EIA-0384 (82), April 1983, p. 151; 1982 — *Monthly Energy Review*, DOE/EIA-0035 (83/07), August 1983, p. 68.

NUCLEAR POWER'S SHARE OF DOMESTIC CAPACITY, GENERATION AND ENERGY PRODUCTION/CONSUMPTION, HISTORICAL AND PROJECTED

Year	Capacity		Generation		Energy Production, Consumption	
	Thousand MWe	% of Total	Billion kwh	% of Total	Quads[1]	% of Total
1957	0.1	0.1	([2])	([3])	0	0
1958	0.1	0.1	([2])	([3])	([4])	([3])
1959	0.1	0.1	([2])	([3])	([4])	([3])
1960	0.3	0.2	1	0.1	([4])	([3])
1961	0.4	0.2	2	0.3	([4])	([3])
1962	0.7	0.4	2	0.2	([4])	0.1
1963	0.7	0.3	3	0.3	([4])	0.1
1964	0.9	0.4	3	0.3	([4])	0.1
1965	0.9	0.4	4	0.4	([4])	0.1
1966	1.9	0.8	6	0.5	0.1	0.2
1967	2.9	1.1	8	0.7	0.1	0.2
1968	2.8	1.0	13	1.0	0.1	0.2
1969	4.0	1.3	14	1.0	0.2	0.3
1970	6.5	1.9	22	1.5	0.2	0.3
1971	8.7	2.4	38	2.4	0.4	0.6
1972	15.3	3.8	54	3.1	0.6	0.8
1973	21.0	4.7	83	4.5	0.9	1.2
1974	31.6	6.6	114	6.1	1.3	1.8
1975	39.8	7.8	173	9.0	1.9	2.7
1976	42.9	8.1	191	9.4	2.1	2.8
1977	49.9	8.9	251	11.8	2.7	3.5
1978	53.5	9.2	276	12.5	3.0	3.8
1979	54.6	9.0	255	11.4	2.7	3.4
1980	56.5	9.2	251	11.0	2.7	3.6
1981	60.7	9.6	273	11.9	3.0	4.1
1982	63.1	9.7	283	12.6	3.1	4.4
1985	80.0	11.5	432	16.3	4.6	5.7
1990	114.0	15.3	611	20.4	6.5	7.5

[1]One quad equals quadrillion (10^{15}) Btu.
[2]Less than 0.5 billion kilowatt-hours.
[3]Less than 0.05 percent.
[4]Less than 0.05 quads.
Note: Projections are based on DOE's Scenario B, a reference/mid case.
Source: U.S. Department of Energy, Energy Information Administration, 1957 to 1982 — Office of Energy Markets and End Use, *1982 Annual Energy Review*, DOE/EIA-0384(82), April 1983, pp. 5, 7, 151, 159; 1985 and 1990 — Office of Policy, Planning and Analysis, *Energy Projections to the Year 2010*, DOE/PE-0029/2, October 1983, pp. 3-7, 3-8, 3-9, 3-17, A-1.

STATE AND REGIONAL ELECTRICAL GENERATION BY NUCLEAR POWER, 1982*

Ranking by Percent	*State*	Nuclear Generation (million kwh)	Nuclear as Percent of *State* Total kwh
1	Vermont	4,174	82.6
2	Connecticut	13,627	55.8
3	Maine	4,524	54.3
4	Nebraska	8,751	47.9
5	Virginia	17,420	47.6
6	New Jersey	14,039	44.6
7	Alabama	27,703	37.1
8	Minnesota	10,197	35.7
9	South Carolina	13,157	35.7
10	Maryland	10,345	34.8
11	Arkansas	7,483	31.9
12	Illinois	27,625	29.5
13	Wisconsin	10,267	27.5
14	Michigan	15,004	21.8
15	Florida	19,319	21.0
16	Tennessee	10,104	17.0
17	New York	14,438	14.2
18	Pennsylvania	16,472	13.7
19	Massachusetts	4,173	12.3
20	North Carolina	9,127	12.2
21	Georgia	6,604	11.0
22	Iowa	2,269	10.4
23	Oregon	4,793	10.1
24	Washington	3,630	3.6
25	California	3,736	3.2
26	Ohio	3,226	3.1
27	Colorado	569	2.2

Total 27 states = 282,776 million kwh nuclear

Ranking by Percent	*Region*	Nuclear Generation (million kwh)	Nuclear as Percent of *Regional* Total kwh
1	New England (ME, NH, VT, MA, RI, CT)	26,498	34.4
2	South Atlantic (DE, MD, DC, VA, WV, NC, SC, GA, FL)	75,972	18.7
3	East South Central (KY, TN, AL, MS)	37,807	18.1
4	Middle Atlantic (NY, NJ, PA)	44,949	17.7
5	East North Central (OH, IN, IL, MI, WI)	56,122	15.2
6	West North Central (MN, IA, MO, ND, SD, NE, KS)	21,217	12.7
7	Pacific Contiguous (WA, OR, CA)	12,159	4.6
8	West South Central (AK, LA, OK, TX)	7,483	2.4
9	Mountain (MT, ID, WY, CO, NM, AZ, UT, NV)	569	0.3
10	Pacific Noncontiguous (AS, HI)	0	0.0

Total 10 regions = 282,776 million kwh nuclear

*The above tables indicate the amount of electricity generated by nuclear power only in those states having nuclear generating capability and in all regions of the United States. Data do not necessarily indicate the amount of electricity actually consumed in a state or region since in some instances a portion of the electricity generated by a utility's power plants in one state is sold to and used by customers in another state.

Source: U.S. Department of Energy, Energy Information Administration, *Electric Power Monthly*, DOE/EIA-0226, February, April, June, August, October and December 1982 issues.

AVERAGE LEAD TIME FOR U.S. NUCLEAR POWER PLANTS BY YEAR OF COMMERCIAL OPERATION, 1970-1982

Year of Initial Commercial Operation	No. of Units	Capacity (MWe)	Duration of Activity in Months				
			Pre-Licensing[1]	Licensing[2]	Construction[3]	Fuel Loading and Startup[4]	Total Lead Time Months/Years
1970	3	1,761	3 7	8 3	42 3	5 7	60 0 5 0
1971	5	3,504	3 6	8 4	46 0	8 2	66 2 5 5
1972	6	3,972	7 7	13 3	49 0	6 7	76 7 6 4
1973	8	6,389	2 3	12 1	60 1	9 9	84 4 7 0
1974	12	9,999	3 8	12 0	69 2	7 9	92 9 7 8
1975	9	7,709	5 9	16 3	61 3	9 9	93 4 7 8
1976	3	2,897	6 6	22 0	67 0	7 7	103 3 8 6
1977	7	6,327	6 6	19 1	82 7	8 0	116 4 9 7
1978	4	3,819	11 2	19 3	89 5	9 8	129 8/10 8
1979	2	1,114	12 5	26 0	64 5	41 0	144 0/12 0
1980	2	1,819	2 0	25 0	89 5	13 0	129 5/10 8
1981	4	4,272	5 2	21 2	112 3	13 8	152 5/12 7
1982	1	1,148	6 0	19 0	133 0	12 0	170 0/14 2

[1]From date the nuclear steam supply system (NSSS) was ordered to docketing of the construction permit (CP) by NRC.
[2]From CP docketing to CP issuance by NRC.
[3]From CP issuance to issuance of the operating license (OL) by NRC.
[4]From OL issuance to commercial operation.
Source: U.S. Department of Energy, Office of Converter Reactor Deployment, *U.S. Central Station Nuclear Electric Generating Units: Significant Milestones,* DOE/NE-0030/8, August 1983, pp. 3-12.

10 YEAR PROFILE OF U.S. REACTORS GOING INTO COMMERCIAL OPERATION

End of Year	Additions per year[1]		Cumulative[2]	
	No. of Units	MWe	No. of Units	MWe
1983	3	2,936	76	60,223
1984	15	16,852	91	77,075
1985	13	13,334	104	90,409
1986	10	10,683	114	101,092
1987	3	3,495	117	104,587
1988	5	5,703	122	110,290
1989	1	1,250	123	111,540
1990	3	3,593	126	115,133
1991	0	0	126	115,133
1992	0	0	126	115,133
1993	0	0	126	115,133

[1]Based on current commercial operation dates as shown in AIF's 1983 year-end status report of U.S. reactors.
[2]Excludes 3 reactors (1,932 MWe) that were in commercial operation but are now shut down indefinitely; 9 reactors (10,420 MWe) with construction permits whose operation dates have been indefinitely delayed; and 2 reactors (2,240 MWe) on order whose current operation dates are beyond 1993.
Source: Atomic Industrial Forum 1983 Year-End Report news release, "The Nuclear Industry in 1983: Buoyed By The Rising Tide," January 16, 1984, p. 9.

U.S. AVERAGE ELECTRICAL GENERATING COSTS AND POWER PLANT PERFORMANCE, 1982

For units entering commercial service in the years listed[1]

NUCLEAR

Initial Year of Commercial Operation	Number of Units	Generating Capacity (MWe)	Total[2] Generating Cost (¢/kwh)	Capital Cost (¢/kwh)	Fuel Cost (¢/kwh)	O & M Cost (¢/kwh)	Other[3] Cost (¢/kwh)	Capacity[4] Factor (%)	Availability[5] Factor (%)	Forced[6] Outage Rate (%)
1970	4	2,369	2.4	0.9	0.7	0.8	0.0	68.2	78.2	4.7
1971	4	2,609	2.9	1.1	0.6	1.1	0.1	51.9	57.5	18.7
1972	8	5,439	2.3	0.9	0.7	0.6	0.1	69.4	78.2	5.2
1973	7	5,147	2.4	1.1	0.6	0.6	0.1	68.9	76.0	10.7
1974	11	8,723	2.4	1.1	0.7	0.6	0.0	63.8	72.7	12.4
1975	8	6,946	2.9	1.5	0.4	0.9	0.1	57.6	62.7	12.2
1976	4	3,645	4.2	2.3	0.8	1.1	0.0	53.8	64.1	14.4
1977	7	5,952	4.4	2.6	0.6	1.1	0.1	52.6	61.6	18.2
1978	2	1,965	3.8	2.8	0.5	0.5	0.0	54.6	55.8	16.5
1979	1	754	4.1	2.5	0.6	1.0	0.0	55.2	63.8	11.8
1980	2	1,748	4.2	2.9	0.7	0.6	0.0	50.9	57.2	22.8
1981	4	4,064	4.1	2.8	0.6	0.7	0.0	63.0	81.4	12.4
Totals or Weighted Averages	**62**	**49,361**	**3.1**	**1.6**	**0.6**	**0.8**	**0.1**	**60.5**	**69.4**	**12.2**

COAL

Initial Year of Commercial Operation	Number of Units	Generating Capacity (MWe)	Total[2] Generating Cost (¢/kwh)	Capital Cost (¢/kwh)	Fuel Cost (¢/kwh)	O & M Cost (¢/kwh)	Other[3] Cost (¢/kwh)	Capacity[4] Factor (%)	Availability[5] Factor (%)	Forced[6] Outage Rate (%)
1970	4	2,080	3.2	0.9	1.9	0.4	0.0	52.9	72.4	11.5
1971	7	4,695	3.5	1.1	2.0	0.4	0.0	50.5	72.0	12.4
1972	5	3,483	3.2	0.8	2.1	0.3	0.0	59.5	82.0	11.0
1973	5	5,042	3.2	0.9	2.0	0.3	0.0	47.0	68.4	15.5
1974	4	4,116	3.0	0.8	2.0	0.2	0.0	52.7	76.0	12.0
1975	6	4,621	3.0	0.8	2.0	0.2	0.0	61.1	88.1	5.5
1976	3	2,278	3.3	1.1	1.8	0.4	0.0	61.2	79.5	8.8
1977	2	1,412	4.0	1.7	1.7	0.6	0.0	61.0	86.1	6.5
1978	4	2,243	3.5	1.3	2.0	0.2	0.0	58.9	85.5	4.6
1979	2	1,215	3.1	1.8	1.1	0.2	0.0	40.8	74.0	4.6
1980	6	4,378	5.1	2.6	2.1	0.4	0.0	54.0	81.0	13.7
1981	2	691	4.2	2.1	1.9	0.2	0.0	53.6	72.4	1.5
1982	1	600	2.6	1.4	1.1	0.1	0.0	38.7	61.8	4.2
Totals or Weighted Averages	**51**	**36,853**	**3.5**	**1.2**	**1.9**	**0.3**	**0.0**	**54.1**	**77.8**	**9.8**

OIL

Initial Year of Commercial Operation	Number of Units	Generating Capacity (MWe)	Total[2] Generating Cost (¢/kwh)	Capital Cost (¢/kwh)	Fuel Cost (¢/kwh)	O & M Cost (¢/kwh)	Other[3] Cost (¢/kwh)	Capacity[4] Factor (%)	Availability[5] Factor (%)	Forced[6] Outage Rate (%)
1970	0	–	–	–	–	–	–	–	–	–
1971	1	394	7.7	1.5	5.7	0.5	0.0	22.6	82.6	23.6
1972	1	401	7.7	2.4	5.0	0.3	0.0	30.9	87.3	8.6
1973	1	385	8.5	1.8	5.7	1.0	0.0	9.5	85.6	14.9
1974	4	1,371	5.9	1.4	4.3	0.2	0.0	40.8	76.3	5.1
1975	1	565	5.8	1.5	4.0	0.3	0.0	57.4	73.0	10.7
1976	1	783	6.9	2.1	4.6	0.2	0.0	24.8	65.3	6.7
1977	2	1,608	7.4	1.7	5.3	0.4	0.0	29.2	66.0	5.0
1978	1	516	5.1	0.9	4.0	0.2	0.0	48.5	89.3	1.4
1979	0	–	–	–	–	–	–	–	–	–
1980	1	783	12.2	6.5	5.3	0.4	0.0	16.2	65.8	2.4
1981	1	783	10.1	4.6	5.1	0.4	0.0	19.6	69.6	1.3
Totals or Weighted Averages	**14**	**7,589**	**7.0**	**2.0**	**4.7**	**0.3**	**0.0**	**30.7**	**75.4**	**6.6**

[1] Base-load units of 400 MWe or larger capacity, entering commercial operation from 1970 through 1981 and in commercial service during all of 1982. All utilities having at least a 10 per cent interest in one or more nuclear units are included.

[2] Total cost includes capital, fuel, operation and maintenance, carrying charges, insurance and taxes as well as costs incurred while any unit was not on line but remained in commercial service during the year. For nuclear units, "total cost" includes present allowances for decommissioning and waste management, where permitted by state regulatory authorities.

[3] Other cost represents generating expenses not recorded by the reporting utilities in capital, fuel or operation and maintenance categories.

[4] Capacity factor is the percentage of electricity produced compared with the amount which could have been produced at continuous full power.

[5] Availability factor is the percentage of time during which the unit was capable of producing power at some level, whether or not it was actually in service.

[6] Forced outage rate is the percentage of time during which the unit was not available to produce power when required for service, due to component or other failure.

Source: Atomic Industrial Forum Economic Survey news release, "Nuclear Electricity Total Cost in 1982 Was 3.1¢ Kwh, Saving At Least $1 Billion," September 16, 1983, p. 4.

DOMESTIC URANIUM (U_3O_8) PRODUCED IN 1982

State	Short Tons	% of Total
New Mexico	3,800	28
Wyoming	2,700	20
Texas	2,200	17
Arizona, Colorado, Florida, Idaho, Utah, Washington	4,700	35
Total	13,400*	

*Represents a reduction of 30% over 1981 production.
Source: U.S. Department of Energy, Grand Junction Area Office, Colorado, *Statistical Data of the Uranium Industry*, GJO-100(83), January 1, 1983, p. 9.

FORECAST OF DOMESTIC URANIUM REQUIREMENTS (Short Tons U_3O_8)

Year	Annual	Cumulative
1982	13,500	13,500
1985	18,200	60,000
1990	21,000	153,800
1995	23,600	265,500
2000	28,100	394,600

Source: U.S. Department of Energy, Grand Junction Area Office, Colorado, *Statistical Data of the Uranium Industry*, GJO-100(83), January 1, 1983, p. 68, "most likely" case.

DOMESTIC URANIUM RESOURCE ESTIMATES AS OF JANUARY 1, 1983
(Short Tons U_3O_8)

Forward-Cost[1] Category $/lb U_3O_8	Reserves[2]	Potential Resources[3]		
		Probable[4]	Possible[5]	Speculative[6]
$30	180,000[7]	654,000	257,000	216,000
$30-50 Increment	396,000	513,000	251,000	175,000
$50	576,000	1,167,000	508,000	391,000
$50-100 Increment	313,000	720,000	334,000	261,000
$100	889,000	1,887,000	842,000	652,000

[1]Estimated forward operating and capital costs only were used in developing these estimates. Sunk costs, interest, taxes and return on investment are not included. These cost categories do not represent selling price.

[2]Total estimated proven resources recoverable at forward costs up to $100 per pound U_3O_8 are 889,000 ST U_3O_8, down 1% from previous year.

[3]Total estimated potential resources in all three cost categories as of January 1, 1983 was 3,381,000 ST U_3O_8, 5% or 172,000 tons over 1982.

[4]Estimated to occur in known productive uranium areas.

[5]Estimated to occur in undiscovered or partly defined deposits in formations or geologic settings productive elsewhere within the same geologic province or subprovince.

[6]Estimated to occur in undiscovered or partly defined deposits in formations or geologic settings not previously productive within a productive geologic province or subprovince, or within a geologic province or subprovince not previously productive.

[7]Does not include estimated 110,000 tons of by-product U_3O_8 that could be produced from phosphate and copper production by year 2010.

Source: U.S. Department of Energy, Grand Junction Area Office, Colorado, *Statistical Data of the Uranium Industry*, GJO-100(83), January 1, 1983, pp. 12 and 16. Atomic Industrial Forum, *Uranium 1982*, pp. 16 and 17.

U.S. EMPLOYMENT REQUIREMENTS IN THE NUCLEAR POWER INDUSTRY, CURRENT AND PROJECTED

Occupation	Actual Positions 1983[1]			Projected Positions 1993	Percent Change in Positions 1983-1993
	Employed[2]	Vacancies	Total		
Managers & Supervisors	6,096	422	6,513	7,078	8.6
Engineers	9,712	977	10,689	11,314	5.8
Chemical	195	37	231	266	15.4
Civil	504	17	521	536	3.0
Electrical	1,184	125	1,308	1,448	10.7
Instrument & control	607	80	687	689	0.3
Mechanical	2,449	152	2,600	2,358	-9.3
Nuclear & reactor	1,249	182	1,431	1,666	16.4
Quality assurance/control	1,022	95	1,117	1,276	14.2
Radiation protection	150	31	180	214	19.2
Other engineers	2,356	259	2,615	2,861	9.4
Scientists	860	107	967	1,166	20.6
Biologists	99	6	105	123	17.2
Chemists	203	27	230	285	24.0
Health physicists	380	54	434	528	21.6
Other scientists	179	20	199	231	16.1
Training Personnel	1,541	222	1,763	2,238	26.9
SRO/RO licensed/certified instructors	429	82	511	666	30.3
Other technical/scientific instructors	656	87	743	917	23.4
Other instructors	258	27	285	337	18.2
Support staff	198	26	224	318	42.0
Operators	7,405	817	8,222	9,473	15.2
Shift technical advisors	448	54	502	591	17.7
Shift supervisors	680	73	753	1,035	37.5
Senior licensed operators (SRO)	379	70	449	872	94.2
Licensed operators (RO)	995	114	1,109	1,887	70.2
Non-licensed shift operators	2,110	254	2,364	3,230	36.6
Other non-licensed operators	532	77	609	401	-34.2
Trainees for SRO licenses	519	17	536	287	-46.5
Trainees for RO licenses	994	39	1,033	504	-51.2
Trainees for non-licensed positions	748	119	867	666	-23.2
Technical & Maintenance Personnel	16,087	1,385	17,472	20,783	19.0
Chemistry technicians	1,053	143	1,195	1,452	21.5
Radiation protection technicians	2,094	232	2,325	2,741	17.9
Draftsmen	994	23	1,017	1,140	12.1
Electricians	1,477	157	1,634	2,020	23.6
Instrument & control technicians	2,598	214	2,812	3,246	15.4
Mechanics	3,455	242	3,697	4,534	22.6
Quality assurance/control technicians	1,031	75	1,106	1,329	20.2
Welders with nuclear certification	494	28	522	672	28.7
Other technical & maintenance personnel	2,892	272	3,164	3,649	15.3
Other Professional Workers	1,398	157	1,555	1,641	5.5
Other Technical Personnel	1,482	162	1,644	1,945	18.3
All Other Workers	12,475	775	13,250	14,659	10.6
Grand Total	57,055	5,024	62,079	70,295	13.2

[1]Total authorized positions as of March 1, 1983.

[2]Contractor employment is 16 percent of total filled positions; utility/holding company, 84 percent.

Notes: a. Employment represents authorized full-time positions at 57 INPO member utilities, which includes those jobs involved with design, operation and normal maintenance requirements for nuclear power plants through off-site support personnel, contractors and holding company personnel, as well as utility employees physically located at the plant site.

b. Excluded are temporary positions such as those involved in construction work, fuel reloading and special maintenance.

c. Considers employment at 82 commercial nuclear plants, or 134 reactors, of which 77 are operating and 43 are under construction.

d. Typical power plant staffing for one operating unit has a total employment figure of 387, two-unit operating plant, 864, and three-unit operating plant, 1,120.

e. Numbers may not add to totals because of independent rounding.

Source: *Descriptive Statistics of Occupational Employment in Nuclear Power Utilities, 1983*, working paper prepared by Oak Ridge Associated Universities for U.S. Department of Energy and Institute of Nuclear Power Operations, September 1983, pp. 1, 3, 10, 11, 65, 66, 83 & 91.

U.S. EMPLOYMENT IN THE NUCLEAR ENERGY FIELD BY *OCCUPATION*[1]
1981

Occupation	GOCO[2] Employment	Private Employment	Total Employment	Percent Change in Employment Since 1977
Scientists	**8,070**	**4,790**	**12,860**	**-14.1**
Mathematicians	1,280	550	1,830	-4.0
Chemists	1,790	1,270	3,060	-14.5
Geologists & geophysicists	340	140	480	-6.1
Physicists	2,490	790	3,280	-21.9
Metallurgists	370	170	540	-18.7
Other physical scientists	730	270	1,000	23.5
Biological	560	660	1,220	-22.1
Medical	60	110	170	-39.9
Health physics	420	680	1,100	10.0
Other life scientists	30	150	180	-60.3
Engineers	**11,910**	**26,260**	**38,170**	**-6.6**
Chemical	1,540	950	2,490	3.7
Civil	450	2,700	3,150	-17.7
Electrical & electronic	2,800	4,570	7,370	-5.5
Mechanical	2,850	8,210	11,060	-4.2
Nuclear & reactor	1,300	3,130	4,430	-21.6
Metallurgical	330	480	810	-29.7
Other engineers	2,640	6,220	8,860	4.6
Technicians	**15,010**	**28,580**	**43,590**	**4.7**
Draftsmen	1,500	6,010	7,510	-22.1
Electrical & electronic	3,450	4,260	7,710	16.1
Other engineering technicians	2,890	4,100	6,990	-15.8
Physical science	1,630	1,160	2,790	3.0
Life science	340	240	580	-23.0
Health physics technicians	790	2,800	3,590	50.1
Nuclear reactor operators	580	5,120	5,700	39.3
Other technicians	3,830	4,890	8,720	22.4
Other[3]	**57,020**	**97,890**	**154,910**	**19.6**
Grand Total	**92,010**	**157,520**	**249,530**	**9.9**

[1]Survey results based on 71 percent of estimated total nuclear-related employment universe
[2]Government-owned, contractor-operated
[3]Includes managers, skilled craft workers, clerical workers and other support services
Source: *Occupational Employment in Nuclear-Related Activities, 1981*, ORAU-197, prepared by Oak Ridge Associated Universities for the U.S. Department of Energy, April 1982, pp. xi, 38, 40-42

U.S. EMPLOYMENT IN THE NUCLEAR ENERGY FIELD BY *INDUSTRIAL SEGMENT*[1], 1981

Segment	GOCO[2] Employment	Private Employment	Total Employment	Percent Change in Employment Since 1977
Fuel Cycle	**22,493**	**6,599**	**29,092**	**1.1**
Uranium milling	0	616	616	-68.0
Processing & enrichment of reactor fuel materials	11,222	1,438	12,660	-7.8
Fuel fabrication	78	2,906	2,984	8.9
Transportation of nuclear materials	9	1,145	1,154	36.6
Chemical reprocessing & disposal of irradiated materials	11,184	494	11,678	22.6
Research	**15,463**	**4,054**	**19,517**	**-32.5**
Environmental & ecological research & evaluation	636	227	863	-41.9
Biology & medical research	331	945	1,276	-5.8
Reactor research, development & evaluation	1,358	1,530	2,888	-46.3
Research & development in nuclear energy	13,138	1,352	14,490	-30.0
Design, Manufacture & Operation of Nuclear Reactors, Reactor Components & Research Facilities	**1,399**	**96,110**	**97,509**	**-2.6**
Production of special materials for use in reactors	0	2,863	2,863	-24.6
Reactor & reactor component design & manufacture	0	24,489	24,489	-28.2
Design & engineering of nuclear facilities	263	19,742	20,005	-45.8
Nuclear reactor operation & maintenance	1,136	40,504	41,640	141.1
Design & manufacture of nuclear instruments, gauges & control devices	0	8,512	8,512	5.7
Segments Not Elsewhere Classified	**52,657**	**36,969**	**89,626**	**29.6**
Radioisotopes	0	3,332	3,332	48.1
Accelerators	5,348	879	6,227	7.9
Commercial laboratory services	0	601	601	-54.6
Health physics & industrial safety	0	1,461	1,461	216.9
Weapons development & production	40,699	1,540	42,239	39.6
Industrial radiography	0	686	686	-29.9
Miscellaneous	6,610	28,470	35,080	24.7
Other[3]	**0**	**13,789**	**13,789**	**na**
Grand Total[4]	**92,010**	**157,520**	**249,530**	**9.9**

[1]Survey results based on 71 percent of estimated total nuclear-related employment universe.
[2]Government-owned, contractor-operated.
[3]Includes workers whose industrial segment is unknown.
[4]Rounded.
Source: *Occupational Employment in Nuclear-Related Activities, 1981*, ORAU-197, prepared by Oak Ridge Associated Universities for the U.S. Department of Energy, April 1982, pp. 27, 28, 46, 47.

NUCLEAR GENERATING CAPACITY OUTSIDE THE UNITED STATES, CURRENT AND PROJECTED

Country	1981 (actual)			1982 (actual)		1985		1990		1995		2000	
	MWe	% of Capacity	% of Generation	MWe	% of Capacity	MWe	% of Capacity	MWe	% of Capacity	MWe	% of Capacity	MWe	% of Capacity
Argentina	344	na	na	344	na	944	8.5	1,642	12.0	2,842	na	3,442	23.0
Austria	0	0	0	0	0	na	na	na	na	na	na	na	na
Belgium	1,666	15.0	25.4	2,566	na	5,427	38.0	na	na	na	na	na	na
Brazil	0	0	0	626	1.5	626	1.2	3,116	4.1	6,851	6.9	10,586	11.0
Bulgaria	1,320	na	na	1,760	na	2,760	na	4,760	35.0	na	na	na	na
Canada	5,498	6.7	10.0	6,131	7.1	10,347	10.5	14,502	13.0	na	na	na	na
China, People's Republic of	0	0	0	0	0	0	0	600	na	3,000	na	16,000	na
Cuba	0	0	0	0	0	0	0	1,320	na	na	na	na	na
Czechoslovakia	880	na	na	880	na	3,080	na	6,280	na	na	na	na	na
Denmark	0	0	0	0	0	0	0	0	0	na	na	na	na
Egypt, Arab Republic of	0	0	0	0	0	0	0	900	6.7	3,600	na	8,400	28.6
Finland	2,160	21.4	35.8	2,160	21.4	2,160	20.0	2,160	19.0	3,160	25.0	na	na
France	21,930	31.0	38.0	23,710	33.0	38,200	43.0	58,000	54.0	na	na	na	85.0
Germany, Democratic Republic of (East)	1,400	na	na	1,400	na	5,360	na	9,000	na	9,000	na	na	50.0
Germany, Federal Republic of (West)	8,856	10.0	14.5	10,081	na	17,700	na	25,000	na	na	na	37,000	50.0
Greece	0	0	0	0	0	0	0	600-900	5.0	na	na	na	na
Hungary	0	0	0	0	0	1,760	na	4,760	10.0	na	na	11,000	48.0
India*	860	2.8	na	860	2.8	1,330	2.8	1,800	3.8	4,415	6.4	10,000	9.3
Israel	0	0	0	0	0	0	0	0	0	1,900	26.0	4,750	50.0
Italy**	1,424	3.0	1.5	1,273	2.5	1,711	3.6	4,711	6.4	13,711	na	na	na
Japan***	16,077	11.9	16.7	17,177	12.5	25,621	na	46,000	22.0	na	na	90,000	30.0
Korea, Republic of (South)	587	6.0	na	587	6.0	3,815	na	11,215	na	na	na	na	na
Libya	0	0	0	0	0	0	0	na	na	na	na	na	na
Mexico	0	0	0	0	0	654	2.8	1,308	4.0	na	na	na	na
Netherlands, The	505	3.2	7.5	505	3.1	505	3.0	505	na	450	na	450	na
Pakistan	125	na	7.1	125	na	725	na	na	na	na	na	na	na
Philippines, Republic of the	0	0	0	0	0	620	9.5	620	7.9	620	na	620	na
Poland	0	0	0	0	0	0	0	930	na	3,860	na	na	na
Portugal	0	0	0	0	0	0	0	0	0	na	na	2,700	18.0
Romania	0	0	0	0	0	0	C	3,960	20.0	na	na	na	na
South Africa, Republic of	0	0	0	0	0	1,844	7.0	na	na	na	na	na	na
Spain	2,030	6.2	8.6	2,030	na	7,655	20.3	12,555	26.1	18,000	32.1	27,000	40.0
Sweden	4,600	16.8	36.0	6,415	21.0	9,450	30.0	9,450	28.0	na	na	na	na
Switzerland	1,940	13.8	28.1	1,940	13.8	2,882	19.1	na	na	na	na	na	na
Taiwan (Republic of China)	2,163	22.4	25.3	3,114	27.3	4,928	31.0	8,728	na	11,578	na	na	na
Thailand	0	0	0	0	0	0	0	0	0	900	10.1	na	na
Turkey	0	0	0	0	0	0	0	0	0	1,000	na	na	na
Union of Soviet Socialist Republics	15,790	na	na	na	na	na	na	na	na	na	na	na	na
United Kingdom	6,567	9.6	13.4	6,567	9.6	10,267	na	na	na	na	na	na	na
Yugoslavia	632	na	na	632	na	632	na	na	na	na	na	na	na

*Gross MWe.
**Capacity for 1985, 1990 and 1995 includes share of Super Phenix.
***Gross MWe used; 1981 figures, April 1, 1981-March 31, 1982.
na — not available.
Source: Atomic Industrial Forum International Survey news release, "Five Nations Mark Major Nuclear Advances in 1982," March 31, 1983, p.4.

NUCLEAR ELECTRICAL GENERATION IN OECD COUNTRIES [1] CURRENT AND PROJECTED

Country	1982 (actual) Billion kwh	1982 (actual) % Nuclear	1985 Billion kwh	1985 % Nuclear	1990 Billion kwh	1990 % Nuclear	1995 Billion kwh	1995 % Nuclear	2000 Billion kwh	2000 % Nuclear
Belgium	14 5	30 2	33 0	61 8	35 5	55 7	35 5	48 8	35 5	42 7
Canada	36 4	9 7	67 6	15 1	96 2	19 2	109 8	19 6	119 4	18 4
Finland	15 9	40 3	15 4	33 5	15 4	29 1	22 4	38 0	22 4	33 9
France	103 0	38 7	182 0	59 1	270 0	69 2	353 0	75 9	420 0	80 0
Germany, FR	60 3	17 4	99 0	24 7	140 0	30 7	180 0	37 0	200 0[3]	38 6[3]
Greece[2]	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	6 0	16 4
Italy	6 6	3 8	8 1	4 0	21 1	8 6	77 0	26 6	91 0[3]	26 6[3]
Japan[3]	103 7	20 3	160 0	25 2	253 0	30 1	387 0	37 9	520 0	43 3
Netherlands	3 6	6 8	3 8	6 6	3 8	6 3	3 8	5 9	3 8[3]	5 5[3]
Portugal	0 0	0 0	0 0	0 0	0 0	0 0	5 4	15 7	16 2	37 0
Spain[2]	14 0[3]	12 0	37 2	27 9	65 1	37 9	93 5	45 2	130 9	49 4
Sweden	37 3	38 7	48 0	42 1	58 0	44 6	58 0	44 6	58 0[3]	44 6[3]
Switzerland	14 3	28 2	14 7	29 1	14 7	28 7	14 7	26 3	19 1	31 5
Turkey	0 0	0 0	0 0	0 0	0 0	0 0	6 0	4 8	12 0	7 0
U K	41 6[3]	16 4[3]	48 6[3]	17 5[3]	63 0	25 0	78 2	30 3	97 0	36 6
U S A	283 0	12 6	385 0	15 4	590 0	19 7	675 0	19 4	740 0	19 8

[1] Based on 1983 annual survey of member countries by the Organisation for Economic Co-operation and Development (OECD) Nuclear Energy Agency (NEA)
[2] Data taken from replies to 1982 Nuclear Energy Agency and International Energy Agency survey
[3] OECD NEA estimate
Source: OECD Nuclear Energy Agency, *Summary of Nuclear Power and Fuel Cycle Data in OECD Member Countries*, March 1983, p. 11

WORLD NUCLEAR ELECTRICAL CAPACITY AND GENERATION, CURRENT AND PROJECTED

	1982 (actual) Nuclear	1982 (actual) % of World Total	1985 Nuclear	1985 % of World Total	1990 Nuclear	1990 % of World Total	2000 Nuclear	2000 % of World Total
Capacity (Thousand MWe)	173	8	292	13	265-420	13	575-850	16
Generation (Billion kwh)	866	10	1,465	15	2,200-2,400	18	3,700-5,400	23

Source: International Atomic Energy Agency, *Energy, Electricity and Nuclear Power Estimates for the Period up to 2000*, Reference Data Series No. 1, September 1983 Edition, Tables 4 and 5

WORLD URANIUM RESOURCES*
(Thousand Short Tons U_3O_8)

Continent/Country	Reasonably Assured			Estimated Additional		
	$30/lb. U_3O_8 Reserves	$30-50/lb.	Total	$30/lb. U_3O_8	$30-50/lb.	Total
North America	**773**	**352**	**1,125**	**1,355**	**1,065**	**2,420**
United States	470	316	786	885	540	1,425
Canada	299	36	335	465	522	987
Mexico	4	0	4	5	3	8
Africa	**768**	**175**	**943**	**219**	**165**	**384**
South Africa	321	142	463	109	118	227
Niger	208	0	208	69	0	69
Namibia	155	21	176	39	30	69
Algeria	34	0	34	0	0	0
Gabon	25	3	28	0	13	13
Central African Republic	23	0	23	0	0	0
Somalia	0	9	9	0	4	4
Zaire	2	0	2	2	0	2
Australia	**382**	**30**	**412**	**343**	**27**	**370**
Europe	**105**	**128**	**233**	**57**	**132**	**189**
France	77	20	97	37	24	61
Sweden	0	49	49	0	57	57
Denmark	0	35	35	0	21	21
Spain	16	5	21	11	0	11
Portugal	9	2	11	3	0	3
Greece	2	5	7	3	7	10
Germany, F.R.	1	5	6	2	9	11
Finland	0	4	4	0	0	0
Italy	0	3	3	0	3	3
Austria	–	†	†	1	1	2
United Kingdom	0	0	0	0	10	10
Central & South America	**187**	**7**	**194**	**110**	**21**	**131**
Brazil	155	0	155	105	0	105
Argentina	32	7	39	5	12	17
Chile	0	0	0	0	9	9
Asia	**56**	**17**	**72**	**1**	**37**	**38**
India	42	0	42	1	31	32
Korea	†	14	14	na	na	na
Japan	10	0	10	0	0	0
Turkey	3	3	6	0	0	0
Egypt	0	†	†	0	6	6
Grand Total	**2,270**	**709**	**2,979**	**2,085**	**1,447**	**3,532**

*Data as of January 1, 1981.
†Less than 0.5 thousand tons U_3O_8.
Note: Table excludes China, USSR and associated countries.
Source: OECD Nuclear Energy Agency and the International Atomic Energy Agency, *Uranium Resources, Production and Demand*, February 1982, pp. 18, 19 and 21.

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INFODATA

NUCLEAR POWER FACTS AND FIGURES

STATUS OF U.S. NUCLEAR POWER PLANTS AS OF JANUARY 1, 1985

91 reactors operable*	76,679 MWe
36 reactors with construction permits	39,842 MWe
2 reactors on order	2,240 MWe
129 commitments	118,761 MWe

*Includes 81 reactors (65,642 MWe) in commercial operation;
4 reactors with full-power operating licenses, not yet commercial (Callaway 1 — 1150 MWe, Diablo Canyon 1 — 1084 MWe, Grand Gulf 1 — 1250 MWe, Susquehanna 2 — 1050 MWe);
5 reactors with low-power operating licenses (Byron 1 — 1120 MWe, Catawba 1 — 1145 MWe, Limerick 1 — 1055 MWe, Palo Verde 1 — 1270 MWe, Waterford 3 — 1104 MWe);
1 reactor licensed to load fuel and conduct cold criticality testing (Shoreham — 809 MWe).
Additionally, 2 reactors with operating licenses have been shut down indefinitely: Three Mile Island 1 — 819 MWe, Three Mile Island 2 — 906 MWe.

For nuclear units with construction permits, 22 units are 75-99% complete, 9 others are 50-74% and 5 units are 25-49%.

STATUS OF NUCLEAR POWER PLANTS OUTSIDE THE U.S. AS OF JANUARY 1, 1985

245 reactors operable	139,909 MWe
136 reactors under construction	119,619 MWe
9 reactors on order	8,690 MWe
172 reactors planned	155,014 MWe
562 commitments	423,232 MWe

U.S. NUCLEAR MILESTONES IN 1984

At the end of 1984, nuclear power capacity installed in the U.S. represented about 11% of total electric generating capability.

In 1984, commercial nuclear plants produced about 13.5% of total U.S. electrical output.

U.S. nuclear plants have achieved approximately 850 cumulative reactor-years of operating experience. About 3,500 reactor-years have accumulated worldwide.

During 1984, 6 reactors went into commercial operation, 8 others received operating licenses, 29 reactors were delayed, 8 were cancelled and 1 reactor was retired.

MANUFACTURERS OF U.S. OPERATING REACTORS

Reactor manufacturer by type:

Westinghouse Electric Corporation — 37 Pressurized Water Reactors	37
General Electric Company — 31 Boiling Water Reactors, 1 Graphite Reactor	32
Combustion Engineering, Inc. — 13 Pressurized Water Reactors	13
Babcock & Wilcox Company — 7 Pressurized Water Reactors	7
General Atomic Company — 1 High Temperature Gas-Cooled Reactor	1
Allis-Chalmers — 1 Boiling Water Reactor	1
	91 units

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U.S. ENERGY *PRODUCTION* BY SOURCE, 1950-1984
[Quadrillion (10^{15}) Btu]

Year	Nuclear Quads	Nuclear % of Total	Coal Quads	Coal % of Total	Petroleum[1] Quads	Petroleum % of Total	Natural Gas (Dry) Quads	Natural Gas (Dry) % of Total	Hydro Quads	Hydro % of Total	Other[2] Quads	Other % of Total	Total Energy Production, Quads	Percent Change from Previous Year[3]
1950	0	0	14.6	42.3	12.3	35.5	6.2	18.0	1.4	4.1	[4]	[5]	34.6	12.4
1951	0	0	15.0	39.7	14.0	36.9	7.4	19.6	1.4	3.7	[4]	[5]	37.8	9.5
1952	0	0	13.2	35.8	14.3	38.6	8.0	21.5	1.5	4.0	[4]	[5]	37.0	-2.4
1953	0	0	12.7	34.2	14.7	39.6	8.3	22.4	1.4	3.8	[4]	[5]	37.2	0.8
1954	0	0	11.0	30.9	14.5	40.9	8.7	24.4	1.4	3.8	[4]	[5]	35.6	-4.5
1955	0	0	12.7	32.5	15.7	40.0	9.3	23.9	1.4	3.5	[4]	[5]	39.1	9.9
1956	0	0	13.7	33.0	16.5	39.6	10.0	24.0	1.4	3.4	[4]	[5]	41.6	6.5
1957	0	0	13.4	31.9	16.5	39.3	10.6	25.2	1.5	3.6	[4]	[5]	42.0	0.9
1958	[4]	[5]	11.2	28.5	15.5	39.5	10.9	27.9	1.6	4.1	[4]	[5]	39.2	-6.7
1959	[4]	[5]	11.1	27.1	16.3	39.9	12.0	29.2	1.6	3.8	[4]	[5]	40.9	4.3
1960	0.01	[5]	10.8	26.0	16.4	39.6	12.7	30.6	1.6	3.9	[4]	[5]	41.4	1.3
1961	0.02	0.05	10.4	24.8	16.8	40.0	13.1	31.2	1.7	4.0	[4]	[5]	41.9	1.2
1962	0.03	0.1	10.9	25.5	17.1	39.0	13.7	31.3	1.8	4.1	[4]	[5]	43.5	3.8
1963	0.04	0.1	11.8	26.4	17.7	38.3	14.5	31.3	1.8	3.9	[4]	[5]	45.8	5.2
1964	0.04	0.1	12.5	26.7	18.0	37.4	15.3	31.9	1.9	3.9	[4]	[5]	47.7	4.1
1965	0.04	0.1	13.0	26.9	18.4	37.1	15.8	31.8	2.1	4.1	[4]	[5]	49.3	3.4
1966	0.06	0.1	13.4	26.3	19.6	37.3	17.0	32.4	2.1	3.9	[4]	[5]	52.1	5.7
1967	0.09	0.2	13.8	25.6	20.8	37.6	17.9	32.4	2.4	4.2	0.01	[5]	55.0	5.5
1968	0.14	0.2	13.6	24.4	21.6	37.9	19.1	33.4	2.4	4.1	0.01	[5]	56.8	3.2
1969	0.15	0.2	13.8	23.9	22.0	37.0	20.5	34.4	2.7	4.5	0.01	[5]	59.0	4.0
1970	0.24	0.3	14.5	24.2	22.9	36.6	21.7	34.7	2.6	4.2	0.01	[5]	62.0	5.0
1971	0.41	0.7	13.1	22.0	22.6	36.6	22.3	36.2	2.8	4.5	0.01	[5]	61.2	-1.2
1972	0.58	0.9	14.5	23.1	22.6	36.0	22.2	35.4	2.9	4.6	0.03	0.1	62.4	1.8
1973	0.91	1.5	14.0	22.6	22.1	35.5	22.2	35.7	2.8	4.6	0.05	0.1	62.1	-0.6
1974	1.27	2.1	14.1	23.1	21.1	34.5	21.2	34.9	3.2	5.2	0.05	0.1	60.8	-2.0
1975	1.90	3.2	15.0	25.0	20.1	33.6	19.6	32.8	3.2	5.3	0.07	0.1	59.9	-1.6
1976	2.11	3.5	15.7	26.1	19.6	32.7	19.5	32.6	3.0	5.0	0.08	0.1	59.9	0.1
1977	2.70	4.5	15.8	26.2	19.8	32.9	19.6	32.5	2.3	3.9	0.09	0.1	60.2	0.5
1978	3.02	4.9	14.9	24.4	20.7	33.9	19.5	31.9	2.9	4.8	0.06	0.1	61.1	1.5
1979	2.78	4.4	17.6	27.5	20.4	32.0	20.1	31.5	2.9	4.6	0.09	0.1	63.8	4.4
1980	3.01	4.3	18.6	28.7	20.5	31.7	19.9	30.7	2.9	4.5	0.11	0.2	64.8	1.5
1981	3.13	4.7	18.4	28.5	20.5	31.7	19.7	30.6	2.8	4.3	0.12	0.2	64.4	-0.5
1982	3.08	4.9	18.6	29.2	20.5	32.1	18.2	28.5	3.3	5.1	0.11	0.2	63.9	-0.8
1983	3.20	5.2	17.3	28.2	20.6	33.7	16.5	27.0	3.5	5.7	0.13	0.2	61.2	-4.2
1984	3.55	5.4	19.7	30.1	21.0	31.9	17.8	27.1	3.4	5.2	0.17	0.3	65.5	7.1

[1] Includes crude oil, lease condensate and natural gas plant liquids.
[2] Includes geothermal, wood and waste.
[3] Percent change calculated from data prior to rounding.
[4] Less than 0.005 quadrillion Btu.
[5] Less than 0.05 percent.

Note: Numbers may not add to totals because of independent rounding.

Source: U.S. Department of Energy, Energy Information Administration; 1950 to 1972 — *1983 Annual Energy Review*, DOE/EIA-0384 (83), April 1984, p. 7; 1973-1984 — *Monthly Energy Review*, DOE/EIA-0035 (84/12), December 1984, p. 3.

U.S. ENERGY *CONSUMPTION* BY SOURCE, 1950-1984

[Quadrillion (10^{15}) Btu]

Year	Nuclear Quads	Nuclear % of Total	Coal[1] Quads	Coal % of Total	Petroleum[2] Quads	Petroleum % of Total	Natural Gas (Dry) Quads	Natural Gas (Dry) % of Total	Hydro Quads	Hydro % of Total	Other[3] Quads	Other % of Total	Total Energy Consumption, Quads	Percent Change from Previous Year[4]
1950	0	0	12.9	38.3	13.3	39.6	6.0	17.8	1.4	4.3	([5])	([6])	33.6	8.2
1951	0	0	13.2	36.5	14.4	40.0	7.1	19.5	1.4	4.0	([5])	([6])	36.1	7.4
1952	0	0	11.8	33.0	15.0	41.8	7.5	21.1	1.5	4.2	([5])	([6])	35.8	-0.8
1953	0	0	11.9	32.3	15.6	42.3	7.9	21.5	1.4	3.9	([5])	([6])	36.8	2.6
1954	0	0	10.2	28.5	15.8	44.3	8.3	23.3	1.4	3.9	([5])	([6])	35.7	-2.8
1955	0	0	11.5	29.4	17.3	44.0	9.0	23.0	1.4	3.6	([5])	([6])	39.2	9.6
1956	0	0	11.7	28.7	17.9	44.0	9.6	23.6	1.5	3.7	([5])	([6])	40.8	4.0
1957	0	0	11.1	27.2	17.9	43.9	10.2	25.0	1.6	3.9	0	0	40.8	0.1
1958	([5])	([6])	9.8	24.2	18.5	45.6	10.7	26.2	1.6	4.0	0	0	40.7	-0.4
1959	([5])	([6])	9.8	23.1	19.3	45.5	11.7	27.6	1.6	3.8	0	0	42.4	4.3
1960	0.01	([6])	9.8	22.3	19.9	45.5	12.4	28.3	1.7	3.8	([5])	([6])	43.8	3.2
1961	0.02	0.1	9.5	21.5	20.2	45.5	12.9	29.1	1.7	3.8	([5])	([6])	44.4	1.5
1962	0.03	0.1	9.9	21.2	21.1	45.3	13.7	29.5	1.8	3.9	([5])	([6])	46.5	4.7
1963	0.04	0.1	10.4	21.5	21.7	45.0	14.4	29.8	1.8	3.7	([5])	([6])	48.3	3.8
1964	0.04	0.1	10.9	21.6	22.3	44.2	15.3	30.3	1.9	3.8	([5])	([6])	50.4	4.5
1965	0.04	0.1	11.5	21.8	23.3	44.2	15.8	30.0	2.1	3.9	([5])	([6])	52.8	4.3
1966	0.06	0.1	12.1	21.7	24.4	43.9	17.0	30.6	2.1	3.7	([5])	([6])	55.6	5.7
1967	0.09	0.2	11.8	20.6	25.3	44.0	17.9	31.2	2.3	4.1	0.01	([6])	57.5	3.4
1968	0.14	0.2	12.3	20.1	27.0	44.3	19.2	31.5	2.3	3.8	0.01	([6])	60.9	6.0
1969	0.15	0.2	12.3	19.1	28.3	44.2	20.7	32.3	2.7	4.1	0.01	([6])	64.1	5.2
1970	0.24	0.4	12.1	18.3	29.5	44.5	21.8	32.8	2.7	4.0	0.01	([6])	66.4	3.5
1971	0.41	0.6	11.5	17.0	30.6	45.1	22.5	33.1	2.9	4.2	0.01	([6])	67.8	2.2
1972	0.58	1.1	12.0	16.8	33.0	46.3	22.7	31.9	2.9	4.1	0.03	([6])	71.2	5.0
1973	0.91	1.2	13.0	17.5	34.8	46.9	22.5	30.3	3.0	4.0	0.05	0.1	74.3	4.4
1974	1.27	1.8	12.7	17.5	33.5	46.1	21.7	30.0	3.3	4.6	0.05	0.1	72.6	-2.3
1975	1.90	2.7	12.7	18.1	32.7	46.4	20.0	28.3	3.2	4.6	0.07	0.1	70.6	-2.8
1976	2.11	2.8	13.6	18.3	35.2	47.3	20.4	27.4	3.1	4.1	0.08	0.1	74.4	5.4
1977	2.70	3.5	13.9	18.3	37.1	48.7	19.9	26.1	2.5	3.3	0.08	0.1	76.3	2.6
1978	3.02	3.9	13.9	17.8	38.0	48.6	20.0	25.6	3.1	4.0	0.07	0.1	78.1	2.4
1979	2.78	3.5	15.1	19.1	37.1	47.1	20.7	26.2	3.1	4.0	0.09	0.1	78.9	1.0
1980	2.74	3.6	15.4	20.3	34.2	45.0	20.4	26.8	3.1	4.1	0.11	0.2	76.0	-3.7
1981	3.00	4.1	15.9	21.5	31.9	43.1	19.9	26.9	3.1	4.2	0.13	0.2	74.0	-2.6
1982	3.13	4.4	15.3	21.6	30.2	42.7	18.5	26.1	3.6	5.0	0.11	0.2	70.8	-4.3
1983	3.20	4.5	15.9	22.5	30.1	42.6	17.4	24.6	3.9	5.5	0.13	0.2	70.5	-0.5
1984	3.55	4.8	17.2	23.3	31.0	42.1	18.0	24.5	3.8	5.1	0.17	0.2	73.7	4.6

[1] Includes net imports of coke.
[2] Includes natural gas plant liquids and crude oil burned as fuel.
[3] Includes geothermal, wood and waste.
[4] Percent change calculated from data prior to rounding.
[5] Less than 0.005 quadrillion Btu.
[6] Less than 0.05 percent.

Note: Numbers may not add to totals because of independent rounding.

Source: U.S. Department of Energy, Energy Information Administration; 1950 to 1972 — *1983 Annual Energy Review*, DOE/EIA-0384 (83), April 1984, p. 9; 1973-1984 — *Monthly Energy Review*, DOE/EIA-0035 (84/12), December 1984, p. 4.

U.S. INSTALLED ELECTRICAL GENERATING *CAPACITY* BY PRIME MOVER, 1950-1984

(Name plate rating in thousands of megawatts)

End of Year	Nuclear Power MWe	Nuclear Power % of Total	Conventional Steam[1] MWe	Conventional Steam[1] % of Total	Internal Combustion MWe	Internal Combustion % of Total	Gas Turbine MWe	Gas Turbine % of Total	Hydropower MWe	Hydropower % of Total	Geothermal MWe	Geothermal % of Total	Total Installed Capacity, MWe	Percent Increase over Previous Year
1950	0	0	49.3	71.6	1.9	2.7	0	0	17.7	25.7	0	0	68.9	9.2
1951	0	0	54.9	72.4	2.0	2.6	0	0	18.9	24.9	0	0	75.8	10.0
1952	0	0	59.7	72.6	2.1	2.5	0	0	20.4	24.8	0	0	82.2	8.4
1953	0	0	67.2	73.4	2.2	2.4	0	0	22.0	24.0	0	0	91.5	11.3
1954	0	0	77.1	75.1	2.3	2.2	0	0	23.2	22.6	0	0	102.6	12.1
1955	0	0	87.1	76.1	2.4	2.1	0	0	25.0	21.8	0	0	114.5	11.6
1956	0	0	92.6	76.7	2.5	2.1	0	0	25.7	21.3	0	0	120.7	5.4
1957	0.1	0.1	99.4	77.0	2.5	2.0	0	0	27.0	20.9	0	0	129.1	7.0
1958	0.1	0.1	110.5	77.5	2.6	1.8	0	0	29.4	20.6	0	0	142.6	10.5
1959	0.1	0.1	123.0	78.4	2.7	1.7	0	0	31.1	19.8	0	0	156.8	10.0
1960	0.3	0.2	132.1	78.7	2.8	1.7	0	0	32.4	19.3	([2])	([3])	168.0	7.1
1961	0.4	0.2	141.8	78.5	3.0	1.7	0	0	35.5	19.6	([2])	([3])	180.7	7.6
1962	0.7	0.4	150.0	78.5	3.0	1.6	0	0	37.3	19.5	([2])	([3])	191.1	5.8
1963	0.7	0.4	165.7	78.7	3.2	1.5	0.6	0.3	40.2	19.1	([2])	([3])	210.5	10.2
1964	0.9	0.4	175.0	78.7	3.3	1.5	0.9	0.4	42.2	19.0	([2])	([3])	222.3	5.6
1965	0.9	0.4	186.6	79.0	3.4	1.4	1.4	0.6	43.8	18.6	([2])	([3])	236.1	6.2
1966	1.9	0.8	195.4	78.8	3.5	1.4	2.0	0.8	45.0	18.2	([2])	([3])	247.8	5.0
1967	2.9	1.1	211.1	78.4	3.8	1.4	3.3	1.2	48.1	17.9	0.1	([3])	269.3	8.7
1968	2.8	1.0	226.8	77.9	4.0	1.4	6.2	2.1	51.2	17.6	0.1	([3])	291.1	8.1
1969	4.0	1.3	242.2	77.3	4.2	1.3	10.1	3.2	52.8	16.9	0.1	([3])	313.3	7.6
1970	6.5	1.9	260.0	76.1	4.4	1.3	15.5	4.6	55.1	16.1	0.1	([3])	341.6	9.0
1971	8.7	2.4	277.8	75.3	4.5	1.2	21.9	5.9	55.9	15.1	0.2	0.1	368.9	8.0
1972	15.3	3.8	294.1	73.8	4.8	1.2	27.7	6.9	56.4	14.2	0.3	0.1	398.6	8.1
1973	21.0	4.7	320.8	72.5	5.0	1.1	33.4	7.6	62.0	14.0	0.4	0.1	442.4	11.0
1974	31.6	6.6	337.3	70.6	5.0	1.1	39.6	8.3	63.6	13.3	0.4	0.1	477.6	8.0
1975	39.8	7.8	352.9	69.4	5.1	1.0	44.1	8.7	65.9	13.0	0.6	0.1	508.3	6.4
1976	42.9	8.1	367.9	69.3	5.3	1.0	46.6	8.8	67.7	12.7	0.6	0.1	531.0	4.5
1977	49.9	8.9	387.8	69.2	5.3	0.9	47.9	8.6	68.7	12.3	0.6	0.1	560.2	5.5
1978	53.5	9.2	399.5	69.0	5.5	0.9	49.0	8.5	71.0	12.3	0.6	0.1	579.2	3.4
1979	54.6	9.0	411.6	68.9	5.5	0.9	50.6	8.5	75.3	12.6	0.7	0.1	598.3	3.3
1980	56.5	9.2	423.5	69.0	5.5	0.9	50.6	8.3	76.4	12.4	1.0	0.2	613.5	2.5
1981	60.8	9.6	438.9	69.1	5.6	0.9	51.4	8.1	77.1	12.1	1.0	0.2	634.8	3.5
1982	63.0	9.7	450.9	69.3	5.1	0.8	51.8	8.0	78.1	12.0	1.1	0.2	650.1	2.4
1983	66.0	10.0	454.1	69.1	5.0	0.8	51.6	7.9	79.0	12.0	1.3	0.2	657.0	1.1
1984	71.7	10.7	461.7	68.7	4.8	0.7	51.8	7.7	80.5	12.0	1.4	0.2	672.0[4]	2.3

[1] Includes capacity at plants that produce steam from coal, petroleum, natural gas and biomass

[2] Less than 0.05 thousand megawatts.

[3] Less than 0.05 percent.

[4] Includes 10 megawatts in wind-turbine capacity and 1 megawatt in solar capacity.

Note: Numbers may not add to totals because of independent rounding.

Source: U.S. Department of Energy, Energy Information Administration; 1950 to 1983 — *1983 Annual Energy Review*, DOE/EIA-0384 (83), April 1984, p. 201; 1984 — *Electric Power Monthly*, DOE/EIA-0226 (84/12), December 1984, p. 3.

U.S. ELECTRICAL *GENERATION* BY SOURCE, 1950-1984
(Billion kilowatt-hours)

Year	Nuclear kwh	Nuclear % of Total	Coal kwh	Coal % of Total	Oil kwh	Oil % of Total	Gas kwh	Gas % of Total	Hydro kwh	Hydro % of Total	Other[1] kwh	Other[1] % of Total	Total Electric Generation kwh	Percent Increase over Previous Year
1950	0	0	155	47.1	34	10.3	45	13.7	96	29.2	[2]	[3]	329	13.1
1951	0	0	185	49.9	29	7.8	57	15.4	100	27.0	[2]	[3]	371	12.8
1952	0	0	195	48.9	30	7.5	68	17.0	105	26.3	[2]	[3]	399	7.6
1953	0	0	219	49.4	38	8.6	80	18.1	105	23.7	[2]	[3]	443	11.0
1954	0	0	239	50.6	32	6.8	94	19.9	107	22.7	[2]	[3]	472	6.5
1955	0	0	301	55.0	37	6.8	95	17.4	113	20.7	[2]	[3]	547	15.9
1956	0	0	339	56.4	36	6.0	104	17.3	122	20.3	[2]	[3]	601	9.9
1957	[2]	[3]	346	54.8	40	6.4	114	18.1	130	20.6	[2]	[3]	632	5.2
1958	[2]	[3]	344	53.4	40	6.2	120	18.6	140	21.7	[2]	[3]	645	2.1
1959	[2]	[3]	378	53.2	47	6.6	147	20.7	138	19.4	[2]	[3]	710	10.1
1960	1	0.1	403	53.3	48	6.3	158	20.9	146	19.3	[2]	[3]	756	6.5
1961	2	0.3	422	53.1	49	6.2	169	21.3	152	19.1	[2]	[3]	794	5.0
1962	2	0.2	450	52.6	49	5.7	184	21.5	169	19.8	[2]	[3]	855	7.7
1963	3	0.3	494	53.9	52	5.7	202	22.0	166	18.1	[2]	[3]	917	7.5
1964	3	0.3	526	53.5	57	5.8	220	22.4	177	18.0	[2]	[3]	984	7.3
1965	4	0.4	571	54.1	65	6.1	222	21.0	194	18.4	[2]	[3]	1,055	7.2
1966	6	0.5	613	53.6	79	6.9	251	21.9	195	17.0	1	0.1	1,144	8.4
1967	8	0.6	630	51.9	89	7.3	265	21.8	222	18.3	1	0.1	1,214	6.1
1968	13	1.0	685	51.5	104	7.8	304	22.9	222	16.7	1	0.1	1,329	9.5
1969	14	1.0	706	48.9	138	9.6	333	23.1	250	17.3	1	0.1	1,442	8.5
1970	22	1.4	704	46.0	184	12.0	373	24.3	248	16.2	1	0.1	1,532	6.2
1971	38	2.4	713	44.2	220	13.6	374	23.2	266	16.5	1	0.1	1,613	5.3
1972	54	3.1	771	44.1	274	15.6	376	21.5	273	15.6	2	0.1	1,750	8.5
1973	83	4.5	848	45.6	314	16.9	341	18.3	272	14.6	2	0.1	1,861	6.3
1974	114	6.1	828	44.4	301	16.1	320	17.1	301	16.1	3	0.2	1,867	0.3
1975	173	9.0	853	44.5	289	15.1	300	15.6	300	15.6	3	0.2	1,918	2.7
1976	191	9.4	944	46.3	320	15.7	295	14.5	284	13.9	4	0.2	2,038	6.3
1977	251	11.8	985	46.4	358	16.8	306	14.4	220	10.4	4	0.2	2,124	4.2
1978	276	12.5	976	44.2	365	16.6	305	13.8	280	12.7	3	0.2	2,206	3.9
1979	255	11.4	1,075	47.8	304	13.5	329	14.7	280	12.4	4	0.2	2,247	1.9
1980	251	11.0	1,162	50.8	246	10.8	346	15.1	276	12.1	6	0.2	2,286	1.7
1981	273	11.9	1,203	52.4	206	9.0	346	15.1	261	11.4	6	0.2	2,295	0.4
1982	283	12.6	1,192	53.2	147	6.6	305	13.6	309	13.8	5	0.2	2,241	−2.4
1983	294	12.7	1,259	54.5	145	6.3	274	11.9	332	14.4	7	0.3	2,310	3.1
1984	325	13.5	1,341	55.6	120	5.0	297	12.3	321	13.3	9	0.3	2,413	4.5

[1]Includes geothermal, wood and waste.
[2]Less than 0.5 billion kilowatt-hours.
[3]Less than 0.05 percent.

Note: Numbers may not add to totals because of independent rounding.

Source: U.S. Department of Energy, Energy Information Administration; 1950 to 1982 — *1983 Annual Energy Review*, DOE/EIA-0384 (83), April 1984, p. 195; 1983-1984 — *Monthly Energy Review*, DOE/EIA-0035 (84/12), December 1984, p. 78.

NUCLEAR ELECTRICAL CAPACITY AND GENERATION AND SHARE OF TOTAL ENERGY PRODUCTION

Year	Capacity		Generation		Energy Production	
	Thousand MWe	% of Total	Billion kwh	% of Total	Nuclear Quads[1]	% of Total Energy
1957	0.1	0.1	([2])	([3])	0	0
1958	0.1	0.1	([2])	([3])	([4])	([3])
1959	0.1	0.1	([2])	([3])	([4])	([3])
1960	0.3	0.2	1	0.1	([4])	([3])
1961	0.4	0.2	2	0.3	([4])	0.1
1962	0.7	0.4	2	0.2	([4])	0.1
1963	0.7	0.3	3	0.3	([4])	0.1
1964	0.9	0.4	3	0.3	([4])	0.1
1965	0.9	0.4	4	0.4	([4])	0.1
1966	1.9	0.8	6	0.5	0.1	0.1
1967	2.9	1.1	8	0.7	0.1	0.2
1968	2.8	1.0	13	1.0	0.1	0.2
1969	4.0	1.3	14	1.0	0.2	0.2
1970	6.5	1.9	22	1.5	0.2	0.3
1971	8.7	2.4	38	2.4	0.4	0.7
1972	15.3	3.8	54	3.1	0.6	0.9
1973	21.0	4.7	83	4.5	0.9	1.5
1974	31.6	6.6	114	6.1	1.3	2.1
1975	39.8	7.8	173	9.0	1.9	3.2
1976	42.9	8.1	191	9.4	2.1	3.5
1977	49.9	8.9	251	11.8	2.7	4.5
1978	53.5	9.2	276	12.5	3.0	5.0
1979	54.6	9.0	255	11.4	2.8	4.4
1980	56.5	9.2	251	11.0	3.0	4.3
1981	60.7	9.6	273	11.9	3.1	4.7
1982	63.0	9.7	283	12.6	3.1	4.9
1983	66.0	10.0	294	12.7	3.2	5.2
1984	71.7	10.7	325	13.5	3.6	5.4
1990	109.6	14.7	574	19.6	6.3	8.9
1995	116.8	14.8	644	18.9	7.1	9.9

[1]One quad equals quadrillion (10^{15}) Btu.
[2]Less than 0.5 billion kilowatt-hours.
[3]Less than 0.05 percent.
[4]Less than 0.05 quads.

Note: Projections are based on DOE's Scenario A, a reference/mid case.

Source: U.S. Department of Energy, Energy Information Administration; 1950 to 1972 — Office of Energy Markets and End Use, *1983 Annual Energy Review*, DOE/EIA-0384 (83), April 1984, pp. 7, 195, 201; 1973-1984 — *Monthly Energy Review*, DOE/EIA-0035 (84/12), December 1984, pp. 3 and 7, *Electric Power Monthly*, DOE/EIA-0226 (84/12), December 1984, p. 3; 1990 and 1995 — *Annual Energy Outlook 1984*, DOE/EIA-0383 (84), January 1985, pp. 204 and 215.

STATE AND REGIONAL ELECTRICAL GENERATION BY NUCLEAR POWER, 1984

Ranking by Percent	*State*	Nuclear Generation (million kwh)	Nuclear as Percent of *State* Total kwh
1	Vermont	3,336	74.7
2	Maine	5,123	55.5
3	Connecticut	14,292	52.5
4	South Carolina	23,235	51.6
5	Virginia	16,356	43.7
6	Arkansas	10,808	36.0
7	Illinois	34,040	34.0
8	Maryland	11,651	32.7
9	Nebraska	5,780	32.2
10	Alabama	24,211	31.4
11	Minnesota	8,328	29.3
12	Wisconsin	10,743	25.7
13	North Carolina	20,232	25.6
14	Florida	24,078	25.5
15	New Jersey	5,610	21.3
16	Michigan	14,078	19.6
17	New York	20,869	19.2
18	Tennessee	12,501	18.2
19	Pennsylvania	21,564	16.3
20	Iowa	2,700	11.9
21	California	13,634	11.3
22	Oregon	4,736	9.1
23	Georgia	5,472	7.4
24	Washington	5,313	5.6
25	Ohio	4,312	4.0
26	Massachusetts	1,035	3.1
27	Missouri	920	1.6
28	Mississippi	165	1.1
29	Colorado	55	0.2

Total: 29 states = 325,177 million kwh nuclear

Ranking by Percent	*Region*	Nuclear Generation (million kwh)	Nuclear as Percent of *Regional* Total kwh
1	New England (CT, ME, MA, NH, RI, VT)	23,786	29.5
2	South Atlantic (DE, DC, WV, FL, GA, MD, NC, SC, VA)	101,023	22.3
3	Middle Atlantic (NJ, NY, PA)	48,042	18.0
4	East South Central (AL, MS, TN, KT)	36,877	16.8
5	East North Central (IL, MI, WI, OH, IN)	63,174	15.7
6	West North Central (IA, MN, MO, NE, KS, ND, SD)	17,729	9.8
7	Pacific Contiguous (CA, OR, WA)	23,683	8.8
8	West South Central (AR, LA, OK, TX)	10,808	3.3
9	Mountain (AZ, CO, ID, MT, NV, NM, UT, WY)	55	0.3
10	Pacific Noncontiguous (AK, HI)	0	0.0

Total: 10 regions = 325,177 million kwh nuclear

The above tables indicate the amount of electricity generated by nuclear power only in those states having nuclear generating capability and in all regions of the United States. Data do not necessarily indicate the amount of electricity actually consumed in a state or region since in some instances a portion of the electricity generated by a utility's power plants in one state is sold to and used by customers in another state.

Source: U.S. Department of Energy, Energy Information Administration, *Electric Power Monthly*, DOE/EIA-0226, (84/12), December 1984, p. 17.

AVERAGE LEAD TIME FOR U.S. NUCLEAR POWER PLANTS BY YEAR OF COMMERCIAL OPERATION, 1970-1984

Initial Year of Commercial Operation	No. of Units	Capacity (MWe)	Duration of Activity in Months				Total Lead Time Months/Years
			Pre-Licensing[1]	Licensing[2]	Construction[3]	Fuel Loading and Startup[4]	
1970	3	1,761	3.7	8.3	42.3	5.7	60.0 / 5.0
1971	5	3,504	3.6	8.4	46.0	8.2	66.2 / 5.5
1972	6	3,972	7.7	13.3	49.0	6.7	76.7 / 6.4
1973	8	6,389	2.3	12.1	60.1	9.9	84.4 / 7.0
1974	12	9,999	3.8	12.0	69.2	7.9	92.9 / 7.8
1975	9	7,709	5.9	16.3	61.3	9.9	93.4 / 7.8
1976	3	2,897	6.6	22.0	67.0	7.7	103.3 / 8.6
1977	7	6,327	6.6	19.1	82.7	8.0	116.4 / 9.7
1978	4	3,819	11.2	19.3	89.5	9.8	129.8 / 10.8
1979	2	1,114	12.5	26.0	64.5	41.0	144.0 / 12.0
1980	2	1,819	2.0	25.0	89.5	13.0	129.5 / 10.8
1981	4	4,272	5.2	21.2	112.3	13.8	152.5 / 12.7
1982	1	1,148	6.0	19.0	133.0	12.0	170.0 / 14.2
1983	3	2,906	16.0	38.3	91.6	11.0	157.0 / 13.1
1984	6	6,416	5.8	29.3	116.2	14.7	166.0 / 13.8

[1]From nuclear steam supply system (NSSS) order to docketing of the construction permit (CP) by NRC
[2]From CP docketing to CP issuance by NRC.
[3]From CP issuance to issuance of the operating license (OL) by NRC.
[4]From OL issuance to commercial operation.

Source: U.S. Department of Energy, Office of Converter Reactor Deployment, *U.S. Central Station Nuclear Electric Generating Units: Significant Milestones,* DOE/NE-0030/11, July 1984, pp. 3-12.

PROFILE OF U.S. REACTORS GOING INTO COMMERCIAL OPERATION

End of Year	Additions per year[1]		Cumulative[2]	
	No. of Units	Net MWe	No. of Units	Net MWe
1984	6	6,416	81	65,642
1985	17	18,865	98	84,507
1986	12	12,970	110	97,477
1987	5	5,885	115	103,362
1988	1	1,100	116	104,462
1989	2	2,463	118	106,925
1990	2	2,305	120	109,230
1991	1	1,213	121	110,443
. . . and beyond[3]	8	8,318	129	118,761

[1]Based on projected commercial operation dates supplied by utilities for AIF's 1985 status report of U.S. reactors.
[2]Excludes 2 reactors (1,725 MWe) that had been in commercial operation but are now shut down indefinitely.
[3]Accounts for 5 reactors (4,873 MWe) with construction permits, the operating dates of which have been indefinitely deferred; 2 reactors (2,240 MWe) on order with operating dates beyond 1991 and 1 reactor (1,205 MWe) with construction reduced to minimum work level and operation date uncertain.

U.S. AVERAGE ELECTRICAL GENERATING COSTS AND POWER PLANT PERFORMANCE, 1983

For units entering commercial service in the years listed[1]

NUCLEAR

Initial Year of Commercial Operation	Number of Units	Generating Capacity (MWe)	Total[2] Generating Cost (¢/kwh)	Capital Cost (¢/kwh)	Fuel Cost (¢/kwh)	O & M Cost (¢/kwh)	Other[3] Cost (¢/kwh)	Capacity[4] Factor (%)	Availability[5] Factor (%)	Forced[6] Outage Rate (%)
1970	4	2,368	2.4	1.0	0.8	0.6	0.0	67.3	75.6	5.4
1971	4	2,694	2.7	1.1	0.7	0.9	0.0	65.2	76.3	6.0
1972	8	5,458	2.5	1.0	0.7	0.7	0.1	73.5	75.1	6.4
1973	7	5,167	2.5	1.2	0.6	0.6	0.1	64.5	72.1	3.5
1974	11	8,714	2.8	1.2	0.7	0.8	0.1	58.7	65.3	10.8
1975	8	6,826	3.6	1.8	0.6	1.1	0.1	53.7	59.8	6.6
1976	4	3,649	6.4	3.8	0.8	1.8	0.0	30.7	37.2	30.1
1977	7	5,851	4.2	2.3	0.7	1.1	0.1	64.4	66.6	11.4
1978	2	1,977	2.9	2.1	0.5	0.3	0.0	71.2	74.9	18.5
1979	1	757	4.7	2.6	0.6	1.4	0.1	56.2	65.9	16.7
1980	2	1,748	3.2	2.0	0.7	0.5	0.0	66.7	71.0	11.4
1981	4	4,079	5.5	3.8	0.6	1.0	0.1	47.9	54.6	21.2
1982	1	1,128	3.3	2.3	0.5	0.5	0.0	62.3	65.4	11.9
Totals or Weighted Averages	**63**	**50,416**	**3.5**	**1.8**	**0.7**	**0.9**	**0.1**	**59.5**	**66.1**	**10.1**

COAL

Initial Year of Commercial Operation	Number of Units	Generating Capacity (MWe)	Total[2] Generating Cost (¢/kwh)	Capital Cost (¢/kwh)	Fuel Cost (¢/kwh)	O & M Cost (¢/kwh)	Other[3] Cost (¢/kwh)	Capacity[4] Factor (%)	Availability[5] Factor (%)	Forced[6] Outage Rate (%)
1970	4	1,805	2.8	0.8	1.7	0.3	0.0	62.6	82.3	6.1
1971	8	4,846	3.2	1.0	1.9	0.3	0.0	55.3	77.1	8.4
1972	6	3,651	3.3	0.9	2.1	0.3	0.0	61.1	81.3	10.4
1973	6	5,388	2.9	0.8	1.9	0.2	0.0	60.6	81.9	10.1
1974	5	4,301	2.9	0.7	2.0	0.2	0.0	62.1	90.0	5.3
1975	6	4,619	3.1	0.8	2.1	0.2	0.0	62.5	87.8	6.2
1976	3	2,272	3.5	1.3	1.8	0.4	0.0	61.9	81.9	7.4
1977	2	1,410	3.9	1.5	1.8	0.6	0.0	57.1	81.3	3.7
1978	4	2,217	3.6	1.4	2.0	0.2	0.0	59.0	86.0	3.6
1979	3	1,284	3.5	1.8	1.3	0.3	0.1	44.2	81.1	2.1
1980	6	4,457	5.1	2.6	2.1	0.4	0.0	52.9	84.2	6.5
1981	2	691	4.0	1.9	1.9	0.2	0.0	57.1	78.6	1.3
1982	3	2,030	4.9	2.2	2.5	0.2	0.0	55.2	86.6	3.3
Totals or Weighted Averages	**58**	**38,971**	**3.5**	**1.2**	**2.0**	**0.3**	**0.0**	**58.6**	**83.1**	**6.6**

OIL

Initial Year of Commercial Operation	Number of Units	Generating Capacity (MWe)	Total[2] Generating Cost (¢/kwh)	Capital Cost (¢/kwh)	Fuel Cost (¢/kwh)	O & M Cost (¢/kwh)	Other[3] Cost (¢/kwh)	Capacity[4] Factor (%)	Availability[5] Factor (%)	Forced[6] Outage Rate (%)
1970	0	–	–	–	–	–	–	–	–	–
1971	1	410	7.6	1.6	5.1	0.9	0.0	22.3	68.3	29.6
1972	1	401	7.0	1.8	4.9	0.3	0.0	36.8	82.9	3.0
1973	1	400	10.1	3.0	6.4	0.7	0.0	13.3	93.9	7.6
1974	4	1,377	5.6	1.2	4.2	0.1	0.0	47.9	88.6	1.9
1975	1	565	5.9	1.5	4.1	0.3	0.0	58.0	75.6	8.2
1976	1	783	6.0	1.4	4.4	0.2	0.0	35.2	89.6	7.8
1977	2	1,608	6.4	1.3	4.9	0.3	0.0	38.9	88.8	6.6
1978	1	506	5.1	1.0	4.0	0.1	0.0	43.4	92.5	2.7
1979	0	–	–	–	–	–	–	–	–	–
1980	1	783	8.9	3.9	4.8	0.2	0.0	31.0	96.5	1.9
1981	1	783	8.4	3.5	4.7	0.2	0.0	27.3	78.3	9.8
1982	0	–	–	–	–	–	–	–	–	–
Totals or Weighted Averages	**14**	**7,616**	**6.4**	**1.7**	**4.5**	**0.2**	**0.0**	**37.5**	**86.4**	**5.6**

FOOTNOTES

[1]Base-load units of 400 MWe or larger capacity, entering commercial operation from 1970 through 1982 and in commercial service during all of 1983. All utilities having at least a 10 per cent interest in one or more nuclear units are included.

[2]Total cost includes capital, fuel, operation and maintenance, carrying charges, insurance and taxes as well as costs incurred while any unit was not on line but remained in commercial service during the year. For nuclear units, "total cost" includes present allowances for decommissioning and waste management, where permitted by state regulatory authorities.

[3]Other cost represents generating expenses not recorded by the reporting utilities in capital, fuel or operation and maintenance categories.

[4]Capacity factor is the percentage of electricity produced compared with the amount which could have been produced at continuous full power.

[5]Availability factor is the percentage of time during which the unit was capable of producing power at some level, whether or not it was actually in service.

[6]Forced outage rate is the percentage of time during which the unit was not available to produce power when required for service, due to component or other

U.S. EMPLOYMENT REQUIREMENTS IN THE NUCLEAR POWER INDUSTRY, CURRENT AND PROJECTED

Occupation	Actual Positions 1984[1]			Projected Positions 1994	Percent Change in Positions 1984-1994
	Employed[2]	Vacancies	Total		
Managers & Supervisors	**6,961**	**387**	**7,348**	**7,661**	**4.3**
Engineers	**10,070**	**1,065**	**11,135**	**11,106**	**0.3**
Chemical	224	12	236	217	-8.1
Civil	536	16	552	555	0.5
Electrical	1,240	113	1,353	1,382	2.1
Instrument & control	522	80	602	619	2.8
Mechanical	2,191	175	2,366	2,328	-1.6
Nuclear & reactor	1,220	144	1,364	1,496	9.7
Quality assurance/control	1,040	114	1,154	1,083	-6.2
Radiation protection	192	28	220	231	5.0
Other engineers	2,905	383	3,288	-3,195	-2.8
Scientists	**982**	**82**	**1,064**	**1,212**	**13.9**
Biologists	130	4	134	147	9.7
Chemists	236	32	268	310	15.7
Health physicists	427	32	459	530	15.5
Other scientists	189	14	203	-225	10.8
Training Personnel	**1,791**	**184**	**1,975**	**2,394**	**21.2**
SRO/RO licensed/certified instructors	529	54	583	747	28.1
Other technical/scientific instructors	677	79	756	891	17.9
Other instructors	308	24	332	393	18.4
Support staff	277	27	304	363	19.4
Operators	**8,015**	**724**	**8,739**	**9,250**	**5.8**
Shift technical advisors	468	69	537	609	13.4
Shift supervisors	906	67	973	1,052	8.1
Senior licensed operators (SRO)	568	63	631	774	22.7
Licensed operators (RO)	1,219	99	1,318	1,803	36.8
Non-licensed shift operators	2,395	146	2,541	2,832	11.5
Other non-licensed operators	628	137	765	708	-7.5
Trainees for SRO licenses	364	31	395	208	-47.3
Trainees for RO licenses	765	14	779	431	-44.7
Trainees for non-licensed positions	702	98	800	833	4.1
Technical & Maintenance Personnel	**17,656**	**1,696**	**19,352**	**20,981**	**8.4**
Chemistry technicians	1,186	145	1,331	1,450	8.9
Radiation protection technicians	2,115	224	2,339	2,548	8.9
Draftsmen	807	21	828	613	-26.0
Electricians	1,817	176	1,993	2,191	9.9
Instrument & control technicians	2,786	232	3,018	3,328	10.3
Mechanics	3,927	463	4,390	4,940	12.5
Quality assurance/control technicians	1,315	129	1,444	1,453	0.6
Welders with nuclear certification	543	23	566	570	0.7
Other technical & maintenance personnel	3,160	283	3,443	3,888	12.9
Other Professional Workers	**2,039**	**165**	**2,204**	**2,528**	**14.7**
Other Technical Personnel	**1,373**	**159**	**1,532**	**1,687**	**10.1**
Subtotal	**48,887**	**4,462**	**53,349**	**56,819**	**6.5**
All Other Workers[3]			**13,597**		
Total	**47,886**	**4,462**	**66,946**	**56,819**	–

[1]Total authorized positions as of March 1, 1984.
[2]Contractor employment is 16 percent of total filled positions; utility/holding company, 84 percent.
[3]All other workers include security, clerical and non-skilled positions. Projections are not made for this category.

Note: Employment represents permanent, full-time positions at 55 utilities, members of the Institute of Nuclear Power Operations, that operate or are constructing 128 units (79 operating, 44 under construction and 5 on hold) at 81 nuclear power plant sites.

Source: *1984 Survey of Nuclear-related Employment in U.S. Electric Utilities*, 1984-037, prepared by the Institute of Nuclear Power Operations (INPO), December 1984, pp. i, 5, 12, 13, 18, 19.

U.S. EMPLOYMENT IN THE NUCLEAR ENERGY FIELD BY *OCCUPATION*
1983

Occupation	GOCO[1]	Private	Government[2]	Total
Scientists	**9,240**	**5,941**	**763**	**15,944**
Mathematicians	1,415	345	16	1,785
Chemists	1,963	1,165	64	3,192
Geologists & geophysicists	107	177	48	332
Physicists	3,058	727	78	3,863
Metallurgists	355	123	8	486
Other physical scientists	886	481	245	1,612
Biological	571	893	10	1,474
Health physics	599	1,817	282	2,698
Other life & medical	286	204	12	502
Engineers	**14,148**	**40,180**	**2,006**	**56,344**
Chemical	1,874	1,203	65	3,142
Civil	415	4,314	133	4,862
Electrical & electronic	3,383	6,015	88	9,486
Mechanical	3,513	10,661	96	14,270
Nuclear & reactor	1,429	4,893	908	7,230
Metallurgical	424	475	24	923
Other engineers	3,110	12,619	692	16,421
Technicians	**20,498**	**36,709**	**111**	**57,318**
Draftsmen	1,676	8,304	2	9,982
Electrical & electronic	4,541	4,828	1	9,370
Other engineering technicians	3,799	3,592	31	7,422
Physical science	2,276	1,721	6	4,003
Life science	508	507	1	1,016
Health physics technicians	1,397	3,582	10	4,989
Nuclear reactor operators	1,216	7,452	0	8,668
Other technicians	5,085	6,723	60	11,868
Other[3]	**55,983**	**97,666**	**5,480**	**159,129**
Grand Total	**99,869**	**180,496**	**8,360**	**288,725**

[1]Government-owned, contractor-operated.
[2]1,001 state and local government workers not classified by occupation are included in the "other" category. U.S. Nuclear Regulatory Commission and U.S. Department of Energy employees comprise the remainder of the Government category.
[3]Includes managers and other professionals, skilled craft workers, clerical workers, other support services and all occupations in the uranium mining and milling industry.

Source: *Occupational Employment in Nuclear-Related Activities, 1983*, ORAU-227, prepared by Oak Ridge Associated Universities for the U.S. Department of Energy, June 1984, pp. 6, 32, 33, 55, 56, 57 and 63.

FORECAST OF DOMESTIC URANIUM REQUIREMENTS (Short Tons U_3O_8)

Year	Annual	Cumulative
1983	15,600	15,600
1985	16,650	48,900
1990	21,200	144,550
1995	22,950	253,000
2000	26,800	376,050

Source: AIF, *Uranium 1983,* 1984, p. 15, based on "World Nuclear Fuel Cycle Requirements 1984," U.S. Department of Energy, DOE/EIA-0436 (84), November 1984.

This table uses the mid-range forecast figures.

U.S. URANIUM RESOURCES as of December 31, 1983 (Short Tons U_3O_8)

Forward Cost	Reasonably Assured Resources	Estimated Additional Resources
< $30/lb U_3O_8	180,000	672,000
$30-$50 lb U_3O_8	396,000	512,000
$50-$100/lb U_3O_8	315,000	705,000
Total	891,000	1,889,000

Note: For reasonably assured resources, lower cost ore average grade is 0.21% U_3O_8; the medium cost ore average grade is 0.08% U_3O_8 and higher cost ore average grade is 0.04% U_3O_8.

Source: AIF, *Uranium 1983,* 1984, p. 16, based on "EIA Reports 1983 U.S. Uranium Production and Resources," U.S. Department of Energy, September 21, 1984.

DOMESTIC URANIUM (U_3O_8) PRODUCED IN 1983

State	Short Tons	% of Total
Wyoming	2,630	24.9
New Mexico	2,550	24.1
Texas	1,650	15.6
Arizona, Colorado, Florida, Idaho, Utah, Washington	3,750	35.4
Totals[1]	10,580	100.0

[1]Includes 3,105 tons U_3O_8 recovered by in-situ and heap leaching as well as from wet-process phosphoric acid and other by-products of processing plants.

Source: AIF, *Uranium 1983,* 1984, p. 4, based on "EIA Reports 1983 U.S. Uranium Production and Resources," U.S. Department of Energy, September 21, 1984.

WORLD NUCLEAR ELECTRICAL CAPACITY AND GENERATION, CURRENT AND PROJECTED

	1983		1990		1995		2000	
	Nuclear	% of World Total	Nuclear	% of World Total	Nuclear	% of World Total	Nuclear	% of World Total
Capacity (Thousand MWe)	189	9	367- 415	13-14	437- 563	13-15	516- 760	14-18
Generation (Billion kwh)	958	11	2,147-2,343	19-20	2,634-3,326	20-22	3,241-4,650	21-26

Note: Forecast figures are low and high points of projected range.

Source: International Atomic Energy Agency, *Energy, Electricity and Nuclear Power Estimates for the Period up to 2000*, Reference Data Series No. 1, September 1984 Edition, Tables 3 and 4.

NUCLEAR ELECTRICAL GENERATION IN OECD COUNTRIES [1] CURRENT AND PROJECTED

	1984		1990		1995	
Country	Billion kwh	% Nuclear	Billion kwh	% Nuclear	Billion kwh	% Nuclear
Belgium	26.4	50.8	33.7	55.9	40.4	59.2
Canada	46.6	11.2	94.7	19.0	108.4	19.4
Finland	17.8	41.1	15.0	30.0	21.0	36.8
France	181.8	58.7	270.0	73.0	326.0	74.9
Germany, FR	87.9	23.6	136.0	34.4	136.0	32.5
Italy	6.9	3.8	20.2[2]	8.2	71.8	23.8
Japan	126.1	22.9[3]	190.0	27.7	285.0	35.4
Netherlands	3.2	6.0	3.5	6.9	8.3	15.3
Spain	22.1	19.4	39.1	27.3	49.4[3]	30.0
Sweden	48.6	40.5	58.0	44.6	58.0	44.6
Switzerland	14.9	31.8	21.5	39.0	21.5	39.0
Turkey	0.0	0.0	0.0	0.0	9.7	7.7
U.K.	47.3	18.6	63.0	23.2	80.0	27.3
U.S.A.	325.2	13.5	574.0	19.6	644.0	18.9
OECD Total	955.0	16.0	1,519.0	23.8	1,860.0	25.3

[1] Based on a 1984 annual survey of member countries by the Organisation for Economic Co-operation and Development (OECD), Nuclear Energy Agency (NEA).
[2] Data from International Energy Agency.
[3] OECD NEA estimate.

Source: OECD Nuclear Energy Agency, *Summary of Nuclear Power and Fuel Cycle Data in OECD Member Countries*, April 1985, table 1.

WORLD URANIUM RESOURCES
(Thousand Short Tons U_3O_8)

Continent/Country	Reasonably Assured			Estimated Additional		
	$30/lb. U_3O_8 Reserves	$30-50/lb.	Total	$30/lb. U_3O_8	$30-50/lb.	Total
North America	**404**	**371**	**775**	**280**	**133**	**413**
United States	176	359	529	40	68	108
Canada	229	12	241	235	62	297
Mexico	4	–	4	5	3	8
Africa	**694**	**195**	**889**	**241**	**109**	**350**
South Africa	248	159	407	129	62	191
Niger	208	--	208	69	–	69
Namibia	155	21	176	39	30	69
Algeria	34	–	34	–	–	--
Gabon	24	6	30	2	11	13
Central African Republic	23	–	23	–	–	–
Cameroon, Republic of	0	0	0	0	2	2
Somalia	0	9	9	0	4	4
Zaire	2	–	2	2	–	2
Australia	**408**	**29**	**437**	**480**	**32**	**512**
Europe	**110**	**115**	**225**	**54**	**96**	**150**
France	73	15	88	35	8	43
Sweden	3	48	51	*	56	56
Denmark	0	35	35	0	21	21
Spain	20	6	26	7	–	7
Portugal	9	2	11	1	–	1
Greece	1	0	1	8	0	8
Germany, F.R.	1	5	7	2	9	11
Finland	0	4	4	–	–	–
Italy	4	–	4	–	1	1
Austria	0	*	*	1	1	2
Central & South America	**237**	**9**	**246**	**129**	**3**	**132**
Brazil	212	–	212	120	–	120
Argentina	24	6	30	9	–	9
Chile	0	3	3	0	3	3
Peru	1	–	1	–	–	–
Asia	**54**	**30**	**84**	**6**	**26**	**32**
India	41	14	55	6	19	25
Korea	0	13	13	–	–	–
Japan	10	–	10	–	–	–
Turkey	3	3	6	–	–	–
Egypt	0	0	0	0	7	7
Grand Total	**1,908**	**749**	**2,657**	**1,190**	**399**	**1,589**

Data as of January 1, 1983.
Excludes China, USSR and associated countries.
* Less than 0.5 thousand short tons U_3O_8.

Note: Numbers may not add to totals because of independent rounding.

Source: OECD Nuclear Energy Agency and the International Atomic Energy Agency, *Uranium Resources, Production and Demand, December 1983*, pp. 19 and 20.

NUCLEAR GENERATING CAPACITY OUTSIDE THE UNITED STATES

	1983			1984			1990		1995		2000		2005	
	MWe	% of Capacity	% of Generation	MWe	% of Capacity	% of Generation	MWe	% of Capacity	MWe	% of Capacity	MWe	% of Capacity	MWe	% of Capacity
Argentina	944	8.0	9.4	944	7.6	11.4	1642	12.0	2842	na	3,442	23.0	na	na
Austria	0	0	0	0	0	0	na	na	na	na	na	na	na	na
Belgium	3,467	26.8	43.5	3,467	26.8	48.6	5446	40.0	na	na	na	na	na	na
Brazil	626	na	na	626	na	na	1,871	na	4,361	na	9,341	na	na	na
Bulgaria	1,760	na	na	1,760	na	na	4,760	35.0	na	na	na	na	na	na
Canada	7,285	8.3	11.0	8,617	9.7	12.0	13,163	12.4	14,925	11.8	na	na	na	na
China, People's Republic of	0	0	0	0	0	0	300	na	2,100	na	10,000	na	na	na
Cuba	0	0	0	0	0	0	1,320	na	na	na	na	na	na	na
Czechoslovakia	880	na	na	880	na	na	6,280	na	na	na	na	na	na	na
Denmark	0	0	0	0	0	0	0	0	na	na	na	na	na	na
Egypt, Arab Republic of	0	0	0	0	0	0	0	0	1,800	na	na	na	na	na
Finland	2,160	21.2	41.5	2,260	21.8	41.0	2,260	20.5	3,260	26.0	na	na	na	na
France*	24,536	34.3	48.3	28,908	38.8	57.4	56,823	54.0	66,193	75.0	na	na	na	na
Germany, Democratic Republic of (East)	1,840	na	na	1,840	na	na	9,840	na	na	na	na	50.0	na	na
Germany, Federal Republic of (West)	9,833	11.5	17.6	14,258	15.5	23.0	23,000	25.0	23,000	25.0	24,300	26.0	na	na
Hungary	440	7.0	na	440	na	na	1,760	25.0	2,760	33.0	4,760	45.0	na	na
India	1,095	3.0	na	1,095	3.0	na	1,800	na	4,620	na	7,170	na	9,620	na
Iran	0	0	0	0	0	0	1,200	na	na	na	na	na	na	na
Israel	0	0	0	0	0	0	0	0	1,800	26.0	3,600	40.0	4,500	na
Italy*	1,273	2.5	3.2	1,273	2.4	na	3,273	5.1	13,873	16.4	na	na	na	na
Japan**	16,615	12.0	20.4	19,025	13.5	20.4	34,000	19.0	48,000	23.0	62,000	27.0	na	na
Korea, Republic of (South)	1,915	14.6	18.3	1,915	13.5	na	7,616	na	na	na	na	na	na	na
Libya	0	0	0	0	0	0	na	na	na	na	na	na	na	na
Mexico	0	0	0	0	0	0	1,308	4.1	na	na	5,300	10.0	na	na
Netherlands, The	505	3.5	na	505	3.5	na	505	na	450	na	450	na	450	na
Pakistan	125	2.3	na	125	na	na	125	na	1,925	11.3	4,025	17.7	na	na
Philippines, Republic of the	0	0	0	0	0	0	620	12.8	620	10.2	620	na	na	na
Poland	0	0	0	0	0	0	465	na	1,860	na	na	na	na	na
Portugal	0	0	0	0	0	0	0	0	0	0	1,000	10.0	na	na
Romania	0	0	0	0	0	0	3,000	20.0	na	na	na	na	na	na
South Africa, Republic of	0	0	0	405	1.8	3.4	1,648	6.8	1,840	4.3	1,840	2.4	1,840	1.7
Spain	3,890	na	na	4,865	na	na	8,690	na	na	na	na	na	na	na
Sweden	7,355	24.0	37.0	9,455	23.5	40.6	9,455	na	na	na	na	na	na	na
Switzerland***	1,940	13.8	29.0	1,940	13.8	33.6	2,885	19.0	2,885	19.0	na	na	na	na
Taiwan (Republic of China)	3,114	27.3	43.3	4,021	32.4	na	4,928	30.5	6,928	38.0	11,390	44.0	na	na
Thailand	0	0	0	0	0	0	0	0	0	0	900	na	na	na
Turkey	0	0	0	0	0	0	0	0	2,821	10.0	6,000	15.0	na	na
Union of Soviet Socialist Republics	23,146	7.0	na	24,146	na	na	71,046	na	na	na	na	na	na	na
United Kingdom****	6,568	10.0	16.9	6,568	10.7	17.7	12,362	na	na	na	na	na	na	na
Yugoslavia	632	na	na	632	na	na	na	na	na	na	na	na	na	na

*Capacity for 1990 and 1995 includes share of Super Phenix.
**1983 percentage of generation for April 1983 to April 1984; 1984 percentage of generation estimated.
***1984 percentage of generation for October 1983 to September 1984.
****1983 percentage of generation for April 1983 to March 1984.